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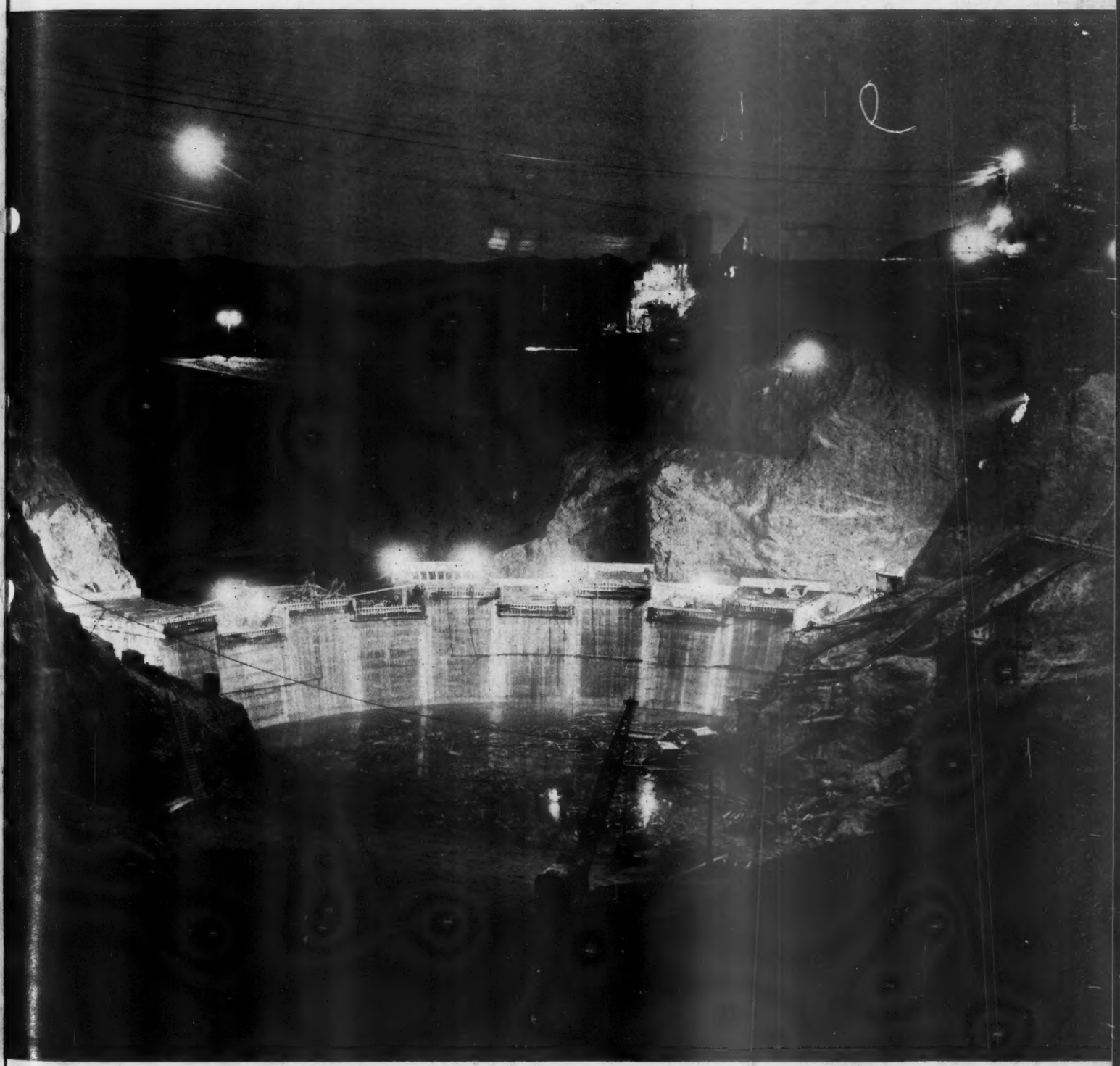

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The National Society of Professional Engineers

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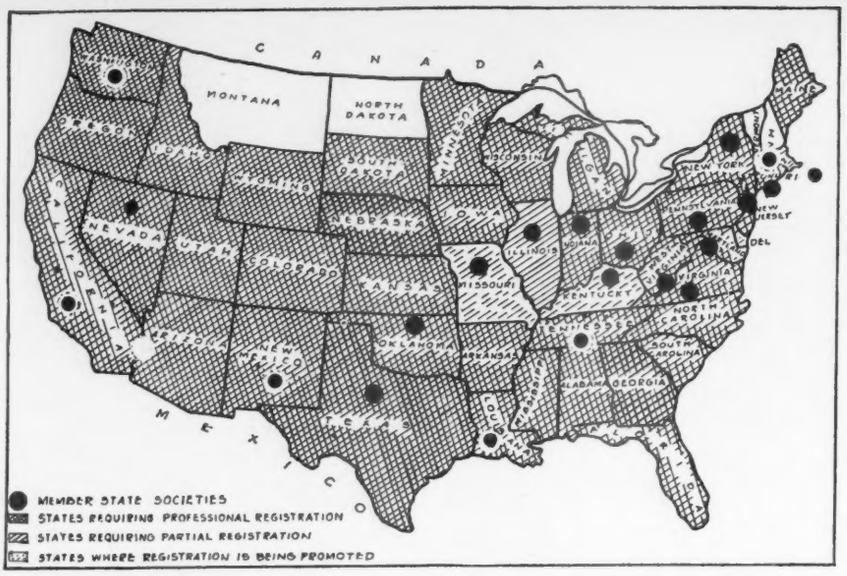

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Photo from the Bureau of Reclamation, Department of the Interior, Washington, D. C.

THE COVER—This night view is of Parker Dam on the Colorado River, 15 miles north of Parker, Arizona. The dam is essentially for irrigation purposes, hence was designed and constructed under the Bureau of Reclamation, Department of the Interior. Dams for flood control come under the jurisdiction of the War Department and are designed by the Corps of Engineers.
Professional Engineers should acquaint themselves with legislation affecting national public works. We recommend especially a study of the national administration's "Reorganization Bill" now being considered by the Congress.

THE AMERICAN ENGINEER will from time to time attempt to record on its cover major incidents of national and international character so that files of the magazine in the future may be a picture record of such events. We will be glad to receive from our members suggestions as to covers, and if you care to send us photographs which you think may be of interest, we would be happy to receive them.

The American Engineer assumes no responsibility for statements or opinions expressed by contributors. Their names identify the source of the same.

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EDITORIAL . . .

STANDING ROOM ONLY ??

DO YOU REMEMBER where and when you first decided to become an Engineer? I remember when I did—it was while sitting on my Grandmother's knee—and I had been hearing tales of the speed of steam locomotives on the Pennsylvania Railroad. Of course I had in mind piloting a locomotive, and "Engineer" was just a term. Now we term him an "Engineman."

DO YOU REMEMBER when you *finally* decided to be an Engineer, to go to college and to what college? I remember that too. I was influenced by a man who had been fairly successful in the real estate business, had not been to college, was poorly educated in fact, but had a firm conviction that there was room in one of the newer engineering fields.

WE HAD SEVEN in our engineering class at college, and when we were graduated, there was a job available for each of us. Today that same engineering course, in that same college, turns out more than can be placed in our field, and some graduates are sorely hurt. They feel that the world has turned them down.

LATER, I REMEMBER the advise to so many boys, "Go into the electrical engineering field", so young men flocked to that course, until electrical engineering classes became crowded. Whole groups were graduated, left in batches to go into apprentice courses with some of the major electrical equipment companies, competed against one another for a year or two. Some dropped out in despair and turned to selling. In my town, right now, three of the best insurance agents in the community are engineering graduates from my own college.

Well! Why this autobiography? Let's get down to "THE ENGINEERING PROFESSION". All right, here goes!

HOW DOES A PROFESSION PROGRESS? By the deeds of its members and the social value of those deeds. Here is my premise, prove it or disprove it as you will:

> "The Engineering Profession will progress in direct ratio to its need by Society, the quality of its membership, and the quantity of engineers required to fill that need."

We are certain of the "need by Society". Let us take that for granted, and proceed with the two remaining issues—quality and quantity.

FIRST AS TO THE "QUALITY". Who constitutes the personnel of the engineering profession? That's simple, it's the practical "school of hard knocks" graduate without college degree, or it's the engineering graduate of college or university who acquires practical experience. Sooner or later, it will be only the latter, for with increased specialization, only the college trained engineer will survive.

WHO DECIDES whether a boy has the capacity to develop into a capable, technically qualified engineer? Who decides that the boy is or is not honest in his thinking—that is, will be ethical? Who decides whether a boy can fulfill the "Quality" standard of the profession?

AT PRESENT, the boy is his own judge. We maintain he should have help in his decision, for the sake of himself and for the sake of the profession of engineering.

NEXT AS TO "QUANTITY"— who decides whether the profession of engineering is or is not crowded with capable engineers to the extent that the boy's chance of ultimate success in engineering is not definitely narrowed?

WHO FRANKLY TELLS the boy that the profession of engineering does not offer hope of becoming rich in possession of money, except by a very few?

WHO ATTEMPTS to prevent whole flocks of high school graduates from jumping into engineering courses on the rosy promises of those who have not carefully analyzed the field?

Who is this fellow writing such a pessimistic article as if to discourage young men from entering engineering? Who?

Well, he is one of many professional engineers, who loves his profession, is extremely jealous of it, and does not want to see it despoiled; who wants those now within its fold to be protected from overcrowding; who wants to see young men, keen, eager, enthusiastic, capable, come into the engineering field, stay there and make a success of their own efforts and be a credit to the profession.

What is being done by the engineering profession generally to answer these issues? Much!

It is obtaining higher scholastic standards in engineering schools. It is accrediting schools which meet present standards. It is accomplishing passage of uniform engineering registration laws in the various states. It is organizing its members along professional lines, as well as along the strictly technical. And now it is beginning to be aware of the fact that, after all, the Engineer is only the boy grown up, and he must be guided at the very beginning as he makes his choice of a profession, business, trade or art.

We have the profound faith that the profession of engineering is as high a public calling as man can aspire to, with the deep sense of the responsibility it entails, and with the hope that in reading this writing, we will remember when, as boys, we struggled with career decisions and would have welcomed a practicing engineer's help and advice to steer us—or better, the help of a whole professional group such as the National Society of Professional Engineers.

LET US ENCOURAGE young men to come into our fold, encourage their ideals and enthusiasm, but let them know that their choice or "career decision" may be the most important in their lives.

Yes, some of us would have chosen the engineering profession in spite of adverse advice—but then it is just such we are seeking to protect.

ROBERT HALL CRAIG

National Society of Professional Engineers

Minutes of Board of Directors Meeting

FEBRUARY 26, 1938

WASHINGTON, D. C.

The Board Meeting was called to order by President Sheridan at 10:15 A. M.

Attendance—Engineer Directors and Chairman of Committees present:

President—ARTHUR V. SHERIDAN
Treasurer—WALTER L. SIMPSON
Executive Secretary—WILLARD S. CONLON
Chairman Legislative Committee—S. I. SACKS, Pa.
Chairman Members Committee—FREDERICK H. ZURMUHLEN
Chairman Public Relations Committee—CHARLES W. UPHAM
Editor AMERICAN ENGINEER— ROBERT HALL CRAIG

D. C.—LEO. H. CLEARY
N. J.—J. F. RANDOLPH
N. Y.—PROF. J. C. RIEDEL
Ohio—HAL G. SOURS
Texas—J. W. BERETTA
Virginia—PROF. R. C. H. BEGG

The Board of Directors approved of the continuance of expenditures in accordance with the budget submitted. President Sheridan was authorized by the Board of Directors to appoint a special Committee to study and make recommendations toward desirable changes in the Constitution. N. S. P. E. will cooperate with other Engineering and scientific organizations regarding "Engineer's Day" at the World's Fair in 1939.

N. S. P. E. endorsed in principle the proposal to construct transcontinental highways. The Illinois Society's proposal that N. S. P. E. discontinue the prefix "Engineer" was taken under advisement for future action.

President Sheridan appointed Professor C. E. Bardsley of the University of Missouri Chairman of the Professional Relations Committee: Engineer Director Charles M. Upham, of the American Road Builders Association was appointed Chairman of the Public Relations Committee and Engineer Frederick H. Zurmuhlen, Consulting Engineer and Architect, New York City was appointed Chairman of the Membership Committee.

The Missouri Society of Professional Engineers and Its Work

A Paper delivered by E. W. CARLTON

President, Missouri Society of Professional Engineers and Professor of Structural Engineering, Missouri School of Mines, Rolla, Mo.

before the
Thirty-Second Annual Meeting of the
Highway Engineers Association of Missouri
at
Kansas City, Missouri
February 17, 1938

The Missouri Society of Professional Engineers had its inception at a meeting held at the Missouri School of Mines on February 9, 1937. The primary purpose of this meeting was to discuss the "Proposed Engineering Licensing Law," then before the state legislature. The severe weather conditions made it almost impossible for others than local engineers to attend this meeting. However, Engineers A. H. Baum and L. J. Sverdrup of St. Louis presented the proposed Registration Law and discussed its various provisions.

Engineer Willard S. Conlon, Secretary of the National Society of Professional Engineers, was present from Washington, D. C., and presented the purpose, ideals and accomplishments of the National Society. After Engineer Conlon's adress, it was the sense of the meeting to establish the Missouri Society of Professional Engineers and affiliate with the national organization as a state member. A temporary organization was formed with Professor J. B. Butler of the School of Mines as President, M. E. Countryman of the Missouri State Highway Department as Vice-President and Dr. C. E. Bardsley of the School of Mines as Secretary-Treasurer. The temporary organization grew rapidly under the leadership of Prof. Butler.

On July 10, 1937 the permanent organization meeting was held in Jefferson City, Missouri, with about eighty engineers in attendance. The following officers and Directors-at-large were elected: E. W. Carlton, Professor of Structural Engineering, Missouri School of Mines as President; F. W. Green, Vice-President St. Louis and Southwestern Railway as First Vice-President; C. W. Brown, Chief Engineer, Missouri State Highway Department as Second Vice-President; G. H. Hamilton, General Manager, W. A. Ross Construction Company as Third Vice-President; anl W. H. McDill, Secretary, Missouri Asphalt Association as Secretary-Treasurer. Directors-at-large: A. P. Green, President of the A. P. Green Fire-Brick Company; H. E. Frech, District Engineer, Portland Cement Association; H. M. Brush, Division Engineer, Missouri State Highway Department; M. E. Countryman, Testing Laboratory Engineer, Missouri State Highway Department; L. W. Helmreich, Engineer, Jefferson City Water Company; and A. P. Learned, Associate Engineer for Black and Veatch Consulting Engineers.

At this meeting a new spirit of cooperation and a consciousness of the need of organization seemed to prevail, and it was indeed encouraging when a state-wide representative group of the engineering profession in Missouri organized as a functioning unit to ascertain the problems which confront our profession and lay plans which will perfect methods for their solution.

The following in broad terms is the objective of the Society as set forth in Article I, Section 2 of our Constitution: "The object of the Society shall be the advancement of the profession of engineering in its several branches, the promotion of the professional welfare of its members, the encouragement of social relations among engineers of the State of Missouri; and the sponsoring of adequate legislation for the protection of engineers and of the public against irresponsible and unethical practices."

When one considers that there are almost two-hundred different national technical societies in the United States it is a natural reaction to feel that the recently established Missouri Society of Professional Engineers is just another society. But each technical society is concerned with its own particular branch of engineering, and in that limited field it is an important unit, and performs a valuable work in keeping its members informed of the technical advance in their particular field of the profession. The activities of these specialized technical societies are naturally restricted to small groups of engineers and to their own divisions of engineering. "The *technical* problems of Civil, Mechanical, Electrical, Mining, Chemical and Ceramic Engineers are divergent, but the *professional* problems are alike."* The National Society of Professional Engineers is meeting the increasing demand for an all-inclusive organization in which all engineers, regardless of specialized training, can meet on common ground and solve the problems common to the profession. Dr. Steinman recently said, "The Medical profession started organizing for the benefit of its members eighty years ago, the legal profession fifty years ago, and if there is any wisdom in the collective minds of the engineering profession we will profit by the successful example of these other professions."

The Missouri Society of Professional Engineers is such an all-inclusive organization for the engineers of Missouri. It cooperates with the National Society in all nation-wide professional problems by virtue of its affiliation as a Member State Society. In the Missouri Society the interests of all Missouri engineers are on an equal and common basis and we hope to make it the largest organization in the State for the purpose of advancing the interests of the profession as a whole. The Missouri Society is not and should not be allowed to become associated with labor unions. The Professional Engineer has invested many years in study, training and experience, in preparation for his professional career and the professional society is organized to protect and enhance the value of this investment as well as to conserve, and strengthen public confidence and esteem in the profession.

* Excerpt from Hand Book issued by the New York Society of Professional Engineers.

(Continued on page 20)

The Engineer and His Relation to Government

By VANNEVAR BUSH

Whether democracy in America can endure depends in no small measure upon the attitude of the great professional classes in general, and in particular upon the attitude and effectiveness of the engineer in his relation to government, says this well-known engineer and educator, who states further that although there is an enormously complex system of organizations of scientists and engineers in the United States, this mechanism is not utilized to the full in expressing the viewpoints of engineers generally upon important public questions. To meet this need Doctor Bush suggests that the organization of engineers should be integrated, simplified, and strengthened.

EDITORIAL NOTE: There is some objection in our membership to reprinting of articles unless there is special import in their contents. The Editorial staff pledges itself to minimize the number of reprints and welcomes articles on professional subjects from our members.
With reference to this article, we feel the National Society of Professional Engineers is the strongest medium by which the objectives of this article can be adequately reached!

Whatever one may conceive to be the future of civilization, whether one is pessimistic or optimistic in regard to the long pull, one thing stands out—we are certainly on our way. The world is full of change. Our systems of government, not only in Europe, but here in America, are in a state of flux. We live faster, occasionally longer, and always in a new pattern of relationships between man and man. We are headed somewhere in a hurry, whether that somewhere be a grand crash, a reversion to a long sleep, or a more abundant life.

The scientist and the engineer started us on this path. They wakened us from the semipeaceful somnolence of a century ago, shrunk the world to a fraction of its former size, and placed the well-oiled wheels of the scientific method under us; and we roar forward in a crescendo of tumult toward the unknown. Now it is suggested that some attention should be paid to the steering gear.

Much attention has been paid to equipping and speeding up the conveyance in which civilization rides, and comparatively little devoted to safety devices. The medical profession has conquered one plague after another, engineers and health officers have extended sanitary measures, and the mentally defective benefit along with everyone else, breed rapidly, and may inherit the earth. Bringing science to agriculture makes possible the production of food by fewer men on less acreage, and our farmers have no place to go. Individual transportation is cheapened, and automobile accidents kill 30,000 people a year. The airplane applies a multiplying factor to the useful lives of busy and creative men, and brings hostile nations within the grasp of one another's throats.

Since the dawn of history the acquisition of skill and knowledge has rendered more complex the relationships between man and man. It is the function of government to control these relationships. Today the burdens and responsibility thrown upon government are increasing by leaps and bounds, and government everywhere is staggering under the load. The kaleidoscopic changes we have witnessed in governments of the nations are a direct result of the growing technical complexity of our lives. Every advance increases the rate of advance, in accordance with the law of acceleration of Henry Adams.* Whether democracy in America can successfully carry the modern burden and the burden to come, and endure, remains to be demonstrated. Certainly this depends in no small measure upon the attitude of the great professional class in general, and in particular upon the attitude and effectiveness of the engineer in his relation to government. It is this relationship that is examined in this address.

First, what really is this government of ours? I am not going to review the history of our democratic system, or the details of its organization. Certainly I am not interested at the moment in the affairs of individuals or parties. The important point is that we have a government which is responsive to public opinion. Sometimes, it is true, this is only haltingly effective; but by and large the course of our affairs is determined by what the great bulk of the public thinks and feels. As we all know, small minorities, through effective organization and pressure, can dictate the course of events in limited areas; but not the major trends. We have had striking illustrations of this power of public opinion in recent times. It first, in a reflection of the war enthusiasm, placed prohibition in the Constitution; and then, in a revulsion of sentiment, forced it out again, in spite of a complex legal situation and the strong resistance of well-knit groups. There is no doubt that, in 1936, public sentiment generally desired a continuance of federal social activity, and obtained what it wanted. More recently public sentiment has turned a tide that was running strongly against the power of the judiciary. The final outcome of the present labor movement similarly will depend upon what all the people think.

This is the essence of democracy, and of a government responsive to the will of the people. This we have and this we hope long to maintain. It is the most beneficent type of government that has yet been created by the mind of man. Yet it has its disadvantages and dangers in a complex modern world; and there is serious question as to whether it can be maintained indefinitely under modern conditions. I make this statement with no implications whatever in regard to any individuals or isms. We have proceeded far in this country along the road of democracy. This republic started its career with great detail in its representative form, expressly designed so that the primary opportunity of the electorate would be to select trusted representatives who would then be somewhat removed from immediate pressure. The loss of real significance of the electoral college, the direct election of senators, the introduction of the referendum, have been some of the steps toward that complete democracy in which the people themselves decide on the important questions of the moment. This trend began with the election of Jefferson and has continued ever since.

Yet this enormous country, with its heterogeneous population and interests, is one of few remaining democracies. We witness a movement in the world at large toward absolutism. It has made little difference in the end result whether this has come about by reason of a

* "The Education of Henry Adams," Houghton Mifflin Company.

Vannevar Bush is vice-president of the Massachusetts Institute of Technology, Cambridge, and dean of the school of engineering. He was graduated from Tufts College in 1913; in 1916 he received the degree of doctor of engineering from MIT and Harvard University, and in 1932 the honorary degree of doctor of science from Tufts. He is known for both his achievements in research and his contributions to engineering education. He has long been interested in the design of analyzing instruments, and for his work in this field he was awarded the Levy Medal of the Franklin Institute in 1928 and the AIEE Lamme Medal for 1935. Doctor Bush is one of the newly elected directors of the AIEE and has served on many AIEE committees. He is the author of many technical articles, and of "Operational Circuit Analysis" and, jointly with W. H. Timbie (A'10, F'24), of "Principles of Electrical Engineering."

Reprint from "Electrical Engineering"

first move toward the left or the right. We see many nations turning toward the placing of absolute power in the hands of one man, with consequent suppression of individual freedom. Democracies elsewhere have proved unstable. No small factor in this situation is to be found in the fact that the questions of the day are too complex for the people truly to grasp in time.

There is a pessimistic philosophy of government which holds that the trend of democracy toward break-down and succeeding absolutism by an individual or a class is inevitable. According to this theory, democracies tend to become increasingly more direct, checks and balances gradually are thrown aside, the dependence of the governing group on public whim leads to weakness in law enforcement, respect for law decreases, and finally chaos ensues, to be followed by seizure of arbitrary power by a closely organized minority. Shall this be true of America? Not necessarily. All these dire results were predicted to follow promptly upon Jefferson's accession; and in fact many seriously expected that the Reign of Terror of France would be repeated here. But it was not, and over a century has passed while this republic has gone through stress of the most intense form. There is a counter influence which has saved us from catastrophe. This is the gradual increase in the standard of living, and the intelligent grasp of large affairs on the part of the people. We have also developed in this country a resistance to the forces of propaganda which occasionally manifests itself. So we may yet go on.

For present purposes, it is sufficient to note that our government is now of rather extreme democratic form, and that public opinion controls its trends in large affairs. Its governing bodies and executives, therefore, are bound to be men who are sensitive to, and able to cope successfully with, this opinion of the public.

In this form, our government is called upon to decide momentous technical matters, most of which are so complex that they can be fully understood, if at all, only by experts. Such questions involve finance, sociology, economics, engineering. They cannot be grasped completely and intelligently by the general public. They cannot be grasped by the elected representatives of that public, who must in the nature of things, be specialists principally in the political art. How then are they to be decided wisely in a democracy?

Much depends upon the answer to this question. We are in competition with nations in which absolutism and intense nationalism control. The maintenance of our position, our relative standard of living, depends upon the skill with which our affairs are handled. Under an absolute ruler all specialists of every sort become government specialists. A dictator can make final, binding, prompt decisions upon weighing their recommendations. Will we, with our exceedingly loose system, be similarly able to bring to bear the best of intelligent judgment upon the technical problems of the day? We must do so, if we are to hold our place. Our frontiers have vanished; the surge of a pioneering people cannot indefinitely carry us forward; we are making rapid inroads upon our unique national resources. The day is coming when our progress will lean heavily on the intelligence with which we treat our public questions.

The age-old struggle between those who have and those who have not is distinctly modified by advancing standards of living. A greater proportion of the people become property holders, and this tends toward stability and orderly processes. Yet the trend proceeds slowly, and the struggle is far from termination. We still face a clash of interests which is as old as history, between those who control our social and industrial systems, and the great mass of people who labor. Whatever the political system, whatever changes in the character of our institutions may come, ths situation will always be with us, for someone must always control; there must always be those who issue orders, benignly or harshly, if the industrial mechanism is to function. It is the proper sphere of government to control and regulate; to set up and enforce the rules that will insure efficiency and equity, to protect minorities, and to deal with other nations. For government to step in and itself become the manager of industry is a mistake. There is no longer an umpire in the field. The lines become drawn between the people and government itself, and this is the beginning of disaster. We cannot afford, in this country of ours, to have an umpire who also plays one one of the teams.

What Distinguishes a Professional Man?

Standing aside from the industrial system, and yet intimately connected with it, are the great professional classes, of which the engineer forms a part. What renders a man a member of this professional group? It is much more than the possession of special knowledge, although this is a necessary attribute. The skilled machinist possesses special knowledge, as does indeed the man who owns and manages a machine shop; yet neither thereby is constituted a professional man. It is more than the nature of the source of income. True, many professional men, physicians and lawyers especially, derive their income from fees from clients. Yet a clergyman is usually on a salary. The majority of scientists are similarly paid by universities and scientific institutions. The great proportion of engineers are employed regularly by industry on a salary basis. Definite association with a specific organization on a salary basis does not bar a man from rightful membership in the professional class. The distinguishing characteristic is the possession of a philosophy and a point of view. The true criterion lies in the basis of motivation of the individual.

In any society there are 4 primary classifications of individuals. First is the great body of artisans who carry on the work of the world. Second are those who manage and direct, deriving their power rather directly from the possession of the facilities for production, or indirectly by delegation from the actual owners. Third stand those who govern. Finally come those whose primary mission in life is to acquire learning and render it usefully available to those in every classification. These last form the professional group.

It is possible for an individual to belong simultaneously to several groups. The farmer is often a worker and a manager. The owner, to whom management is at least formally responsible, may comprise hundreds of thousands of stockholders in all walks of life. He who governs may derive from any group. Similarly, the professional man may adhere also to other classifications. But if he loses his philosophy, if he ceases to regard the acquisition of knowledge for the public welfare and rendering it available to all groups as his primary mission in life, he no longer is truly a professional man.

The late Arthur D. Little in an essay * delivered before the Franklin Institute, defined the "fifth estate" as "those having the simplicity to wonder, the ability to question, the power to generalize, the capacity to apply. It is, in short, the company of thinkers, workers, expounders, and practitioners upon which the world is absolutely dependent for the preservation and advancement of that organized knowledge which we call science. It is their seeing eye that discloses, as Carlyle said, 'the inner harmony of things; what Nature meant.' It is they

* Centenary celebration of the founding of the Franklin Institute, September 17, 1924.

who bring the power and the fruits of knowledge to the multitude who are content to go through life without thinking and without questioning, who accept fire and the hatching of an egg, the attraction of a feather by a bit of amber, and the stars in their courses as a fish accepts the ocean."

It is the high privilege of the engineer to aspire to genuine membership in this distinguished category. The possession of an academic degree is not sufficient to admit him. Success, as measured by his income, does not admit him either. The humble Jesuit parching amid the sands of the desert that he may bring light to the lowly, and the country physician struggling through the storm to relieve suffering, need no decoration of material success to mark them as honorable members of the group. Recognition by colleagues, based upon true scholarship, untainted by self-advertising—this is the reward. Completely free from prejudice as to class or race, laboring for the ultimate good of society at large as he envisages it, above passion, secure in the possession of special knowledge which the world needs and hence independent of the whims of individuals and groups, the true professional man is and should be a figure apart, wherever he may be placed. It is his duty to merit that confidence which alone will permit him to operate with effectiveness.

Government Needs Influence of Engineer

There is all too little respect for law in this country. There is also all too little respect for genuine scholarship. Fundamentally the influence of the professional group depends upon the development of this respect. Only thus can its influence be effective. The trends of affairs can be molded by those who have seen the light only in so far as they are welcomed into the counsels of the groups of the population. The influence of the professional man is sorely needed in these times. Managers of industry have been keen to grasp its peculiar advantages, and there is no lack of contact at this point; but unfortunately it often arises under conditions that render difficult the maintenance of true professional status by the professional man. But government most needs the influence. At this point in this country we proceed haltingly. The influence of the engineer upon the processes of government is especially necessary if there is to be sanity in public affairs. How then may it be enhanced?

The professions of law and medicine exert strong and generally beneficial group influence through their national professional organizations. The profession of engineering does not. No great legal change occurs without scrutiny and pressure from the American Bar Association. No move for the regulation of medical practice proceeds without the prompt, effective participation of the American Medical Association. Great engineering works are constructed in this country, and the group opinion of the body of engineers thereon is not even expressed, with results that are sometimes ludicrous. We have no reason to be proud of the influence of engineers on the course of government as it affects engineering. By and large our efforts have been pitiful.

There is a striking difference in the relationships of these three great professional groups to government. Many members of the legal profession are essentially part of government itself, since they fill our legislatures, sit on the judicial bench, and practice as elements of the court. At the opposite extreme is the medical profession, most of whose members shudder at the thought of governmental medicine and have their heels dug into the ground to resist the present tug in that direction. In between are the engineers, who are more and more becoming closely allied with government as the technical aspects of government activity intensify. We do not know whether, as a group, they resist this trend or not. Apparently they haven't even begun to think about it.

Organization of the Engineering Profession Is Highly Complex

It is said that, where three Americans foregather, there soon will emerge a president, a treasurer, and a secretary. One might add to this that often when learned men associate themselves there will be found an intangible complex organization beyond the mind of man to fathom. There seems to be direct correlation between the scholarly attainments of individuals, and the looseness and ineffectiveness for action of the associations they create. The greater the grasp by a group of the intricacies of a social problem, the less likely is it to present a united front on anything whatever. The rate of progress of a group toward a single objective varies inversely with the number of members thereof, and inversely as the square of their special knowledge. The scheme of organization of the professional groups in this country is a marvel to behold. Those of the lawyers and the physicians have effective elements which have been noted. That of the scientists and engineers is a tangled maze in which most of the participants become lost. I think I can fathom something of the way in which our complex political system operates. I have been a member of many professional organizations for many years, and I have yet to form a rational picture of their activities. Their journals get a quick glance as they zip across my desk toward the sagging shelves. They collect dues with growing persistency. Yet the government digs a hole in the sands of Florida to no proved good purpose, and I hear no voice raised to say that we, the engineers of this country, insist that we be told authoritatively what the economic and engineering complexion of that particular hole really is. Much less do I gather that the hole will not be dug except when it has the blessing of the organized engineers of the country. The trouble is they are not really organized for this effective purpose.

In 1933, the *Technology Review** attempted to sort out the 900 scientific and technical societies listed in a handbook of the National Research Council, and to present something of an organization chart and family tree of the engineering societies included. The tree developed into something of a forest. True, one might construct an imposing list of medical or legal societies devoted to special interests. The difficulty is that the engineering group of societies does not head up anywhere. We are especially interested in the way in which this situation influences the relationship between engineers and government, so it will be examined somewhat in detail.

It is right and proper that there should be many organizations devoted primarily to special technical interests, and the increase of these is inevitable as the interests of engineers fan out. Yet it is far better that this development should occur by subdivision of large national societies, rather than by the creation of new groups with consequent increase in overhead costs, and lack of coordination of interests. The American Institute of Electrical Engineers, last of the four Founder Societies,† was founded in 1884. Since then have appeared the American Electrochemical Society, the Illuminating Engineering Society, the Institute of Radio Engineers, and others representing special interests within this general field. A similar disintegrating tendency appeared in the group of societies dealing with all aspects of physics, but in 1931 the creation of the American Institute of Physics re-

* *Technology Review*, July 1933, page 330, "Engineering Societies, their Multiplicity, their Relatives, their Duplication."

† The others are: American Society of Civil Engineers; American Institute of Mining and Metallurgical Engineers; and The American Society of Mechanical Engineers.

(Continued on page 22)

Legislative Information

By the New York State Society of Professional Engineers, Inc.

The technical problems of the Engineer are divergent, but the professional problems are alike. We are organized on the principle of uniting all engineers as members of one profession.

Editor's Note: The New York State Society of Professional Engineers Inc. is our strongest State Society. Would that some of the other state groups would emulate its virtues!
Here is one of its best activities—the regular dissemination of legislative information by means of bulletins issued to the members. Herewith are copied the most recent bulletins to reach our desk. Engineer Roche and Engineer Lame are to be commended and congratulated!

H. F. LARUE, *Representative*

A. E. ROCHE, *President*
Troy

MID SESSION REVIEW

The Legislative Session is in the sixth week. 1,454 Assembly bills and 1,112 Senate bills, making a total of 2,566 bills, have been introduced to date. Many of these are companion bills. No slowing down in introduction of new bills has occurred.

Both branches are organized under a tacit working agreement to confine highly controversial legislation to committees. The budget has been passed and the only remaining issue of major importance is the Governor's tax revision legislation following tne passage of which prompt action may be expected on selected legislation of non-controversial character. The Assembly has set the dead line for the introduction of local bills as March 1st.

A tentative date for adjournment has been set as March 15th which will permit the convening of the Constitution Convention on April 6th in accordance with previous announcements. Much of the controversial legislation will be generally covered by proposed constitutional amendments.

Our legislative accomplishments will be determined in the next two weeks. Chapters should record their position on all bills with their respective county representatives and chairmen of the various committees within this period. It is most vital to the success of the program.

The bills which formed a part of the 1937 program on which favorable action is sought are all being held in committee. Until a demand by Chapters and individuals has been built up, they will not be released. These bills are summarized on page 2 of this bulletin.

The mid-winter meeting of the State Society will be held in Albany on March 4th and 5th. Ten days will elapse between the date of this meeting and the adjournment of the legislature, during which time no new bills will be received nor will amendments to existing bills on the order of third reading be permitted, except in special cases.

The bills for licensing of air conditioning contractors and builders form a part of a program sponsored by labor and sub-professional groups. The obvious trend of these bills is towards the transfer of professional practice to these groups. In view of the uncertainly of the legislative action, these two bills should be vigorously acted upon by Chapters.

REVIEW OF BILLS PREVIOUSLY REPORTED

A. BILLS PREVIOUSLY ENDORSED (1937)

1. *To require professional supervision of construction.*—(Desmond, Sen. Int. 102, Print 102.) Reported BULLETIN 2, PAGE 4.—Referred to Education Committee. A. Spencer Feld, Chairman.
2. *To require county superintendents to be licensed professional engineers.* (Miller, Sen. Int. 244, Print 244;—Sherman, Assembly Int. 329, Print 329.)—Reported BULLETIN 2, PAGE 4.—Referred Internal Affairs Committee. James A. Garrity, Chairman Senate Committee. Herbert A. Bartholomew, Chairman Assembly Committee.
3. *Public Projects Efficiency Law.*—(Desmond, Sen. Intro. 103, Print 103), Reported BULLETIN 2, PAGE 4.—Referred Judiciary Committee. Philip M. Kleinfeld, Chairman.—Endorsed by the Metropolitan Section, A. S. C. E. in 1937.
4. *To reduce the present size and cost exemptions of structures requiring engineering or architectural services.*—(Dunnigan, Sen. Int. 369, Print 374). Reported BULLETIN 3, PAGE 2.—Referred Education Committee. A. Spencer Feld, Chairman. Endorsed by the Metropolitan Section, A. S. C. E. in 1936.

B. NEW BILLS FOR ENDORSEMENT

1. *To eliminate troublesome and inconsistent exemptions from the present licensing law.*—(Feld—Sen. Int. 664, Print 694) —Reported BULLETIN 4, PAGE 2.—Referred Education Committee. A. Spencer Feld, Chairman.
2. *To require heads of State engineering departments to be licensed professional engineers.*—(Averill, Assembly Int. 516, Original Print 525, New Print No. 1211.)—Reported BULLETIN 3, PAGE 4; BULLETIN 4, PAGE 1.—Referred Ways and Means Committee. Abbott Low Moffatt, Chairman. Feb. 8, Rept. Amend. 3RD REPORT.
3. *To require public work for the State and for counties, cities, towns and villages to be done by licensed professional engineers.*—(Feld, Sen. Int. 663, Print 693.)—Reported BULLETIN 4, PAGE 2.—Referred Education Committee. A. Spencer Feld, Chairman.
4. *To remove present age limitations for employment in technical or professional civil service positions.*—(Dollinger, Assembly Int. 297, Print 297)—Reported BULLETIN 2, PAGE 4.—Referred Civil Service Committee. W. Allan Newell, Chairman. (Reported for information.)
5. *To authorize the creation of county bridge commission.*—(Thompson, Sen. Int. 458, Print 466; Lupton, Assembly Int. 600, Print 615.)—Reported BULLETIN 4, PAGE 4. (Reported for information.) Referred Senate Internal Affairs Committee and Assembly Ways and Means Committee. James A. Garrity, Chairman Senate Committee. Abbott Low Moffatt, Chairman Assembly Committee.
6. *For the construction and repair of highways, bridges, and parkways.*—(Warner, Sen. Int. 732, Print 765)—Reported BULLETIN 4, PAGE 3.—Referred Finance Committee. Jeremiah F. Twomey, Chairman.

C. BILLS PREVIOUSLY OPPOSED

1. *Restricting the engagement of consulting engineers and architects on public work.* —(McNaboe, Sen. Int. 179, Print 179; Dollinger, Assembly Int. 48, Print 48)—Reported BULLETIN 2, PAGE 9.—Referred Senate and Assembly Civil Service Committees. John J. McNaboe, Chairman Senate Committee. W. Allan Newell, Chairman Assembly Committee.
2. *To license builders in New York City.*—(Moran, Assembly Int. 58, Print 58.)—Reported in BULLETIN 2, PAGE 8.—Referred to New York City Committee. Robert J. Crews, Chairman. Opposed by Metropolitan Section A. S. C. E. in 1937.

D. NEW ADVERSE LEGISLATION

1. *To license contractors on air conditioning systems.*—(Garrity, Sen. Int. 174, Print 174.) Reported BULLETIN 3, PAGE 5.—Referred Judiciary Committee. Philip M. Kleinfeld, Chairman.

E. NEW BILLS FOR AMENDMENT AND RECONCILEMENT WITH THE PROFESSIONAL PRACTICE ACTS

1. *Sets up State Mortgage Bank.*—(Feld, Sen. Int. 146, Print 146; Phelps, Assembly Int. 135, Print 135.)—Reported BULLETIN 4, PAGE 6. Referred Senate and Assembly Banks Committee. John T. McCall, Chairman Senate Committee. D. Mallory Stephens, Chairman Assembly Committee.
2. *Incorporation of Mortgage Banks and permits branch banks throughout State.* (Joseph, Sen. Int. 476, Print 484, 967; Stephens, Assembly Int. 745, Print 767.)—Reported BULLETIN 4, PAGE 6.—Referred Senate and Assembly Banks Committees. John T. McCall, Chairman Senate Committee. D. Mallory Stephens, Chairman Assembly Committee.
3. *Registering titles to real property.*—(Joseph, Sen. Int. 28, Print 28; Cariello, Assembly Int. 28, Print 28—Feld, Sen. Int. 148, Print 148; Phelps, Assembly Int. 137, Print 137—Desmond, Sen. Int. 457, Print 465, 964.)—Reported BULLETIN 2, PAGES 5 and 6.—Referred Senate Judiciary Committee and Assembly Mortgage and Real Estate Committee. Philip M. Kleinfeld, Chairman Senate Committee. Lee B. Mailler, Chairman Assembly Committee. Senate Int. 457, Print 465, 964—Feb. 9, Amend. and recommit.—Reported BULLETIN 4, PAGE 5.

A public hearing has been called for March 1st at 2:00 P. M. on these bills. At this hearing, the proposed amendments will be formally presented.

NEW BILL—1ST REPORT

Assembly Intro. No. 1526 by Mr. Kwiatkowski—Labor & Judiciary Committee

To amend the labor law, in relation to certain employees.

Section 1. Section two of chapter fifty on the laws of nineteen hundred twenty-one, entitled, "An act in relation to labor, constituting chapter thirty-one of the consolidated laws," is hereby amended by adding thereto a new subdivision, to be subdivision five-a, to read as follows:

5-a. The term "workmen" shall mean and

(Continued on page 14)

Breadth in Engineering Curricula*

By **PHILLIP C. NASH, President, University of Toledo**

EDITORIAL NOTE: We urge National Society members to give study to this article. We welcome articles from the membership toward improving the broad social courses in an engineering education.

Last October, President Roosevelt asked the engineering profession to consider "whether the curricula of engineering schools are so balanced as to give coming generations of engineers the vision and flexible technical capacity necessary to meet the full range of engineering responsibility."

This is certainly a fair question and is entitled to the most serious consideration, but it appears to have made but little stir in the thinking of engineering administrators. Among others, President Compton of the Massachusetts Institute of Technology, Dean Potter of Purdue, President Williams of Lehigh, and Dr. Hammond, President of the Society for the Promotion of Engineering Education, all sprang to the defense of the engineering educator and replied in public letters to the President that everything is all right from this point of view—that the "engineering educators of the country are fully appreciative of the responsibility of the engineer in bringing about a better balance"†—that "during the past dozen years engineering educators have given extended attention to the problem of the development of social and economic elements in the education of engineering students."‡

In other words, "We have the matter well in hand Mr. President, have had, in fact, for the last decade. Don't worry, we are training our students exactly as they ought to be, and by the way, why do you pick on us, anyhow? Why do you not ask the economists and lawyers and sociologists what's the matter with their training?" There the matter has rested for six months, we engineering educators having simply shrugged our shoulders indicating our belief that we are pretty nearly perfect as we are. But I wonder if it will hurt our dignity if we look a bit below the surface and see just what advances we actually have made in the last decade, how much we have really put into practice the lip service we pronounce in favor of broadening the engineering curicculum.

The self-examination of engineering education in this country undertaken by the Society for the Promotion of Engineering Education took place in the years 1923-29. It was a thorough-going and masterly piece of work and engineers may well be proud of it. Certain facts that were brought out give food for thought. For instance, out of 76 institutions studied, 21 required more than 160 semester hours of work in the usual four year engineering course and the average for all the institutions was 147.* The normal requirement for the ordinary non-engineering college graduate was 120 semester hours.

Evidently we believe that by crowding numbers of courses on to our engineering students we shall make them better men. To some extent this is undoubtedly true. The engineering student is probably more serious than his liberal arts brother, ready to work more and play less, but it is permissible to wonder if the crowding into this time of 160 hours, one third more than we think wise for other students, may possibly leave our engineering student too little time for contemplation, for building up for himself a philosophy of society in general, and his own life in particular? Is such a student in after life just a bit too quick to build a safe, economical dam for his power plant without giving due consideration to those habits of the farmers who live 40 miles upstream and whose lack of soil conservation knowledge results in silting up one quarter of the nice new reservoir within a few years? How much does that constant pressure of daily tasks in difficult engineering and mathematical subjects go to produce a philosophy like that of the Rust brothers, the inventors of the new cotton picking machine? "What makes the Rust brothers' enterprise one of the most fascinating phenomena of our time is that they realize that if their machine is successful it will create profound social problems, and they want to be free to use the profits of the enterprise to assist in attacking these problems."†

But assuming that the engineering student is not too heavily burdened with work the next question is: shall he be allowed to come into official contact during his four year course with any subjects outside of physics, mathematics, and engineering, and if so, how much? Here again the investigation showed amazingly variable practices among the engineering schools but on the average about 17 per cent of the curriculum was found to be outside of engineering, mathematics, and physics. That is, 17 per cent consists of courses in literature and the arts.‡ In some cases it was much less than that. One institution required only one course in English. Everything else could be mathematics, physics, and engineering. Another institution was similar, substituting economics for English, and adding military training. Of course it was *possible* in these institutions and in most others to take courses in other fields, but the young students eager to acquire technical knowledge as quickly as possible so as to have the advantage in getting an immediately better job, can hardly be expected to spurn the advanced electrical course in favor of aesthetics or history, or even accounting or statistics.

The leaders of this research had some doubts as to the wisdom of such a narrow curriculum. The distinguished director of the investigation, Dr. Wickenden, President of the Case School of Applied Science, said:

"Young engineers in 3 cases out of 4 begin their careers in the realm of technical duties, but by the age of 40, 3 out of 5 are occupied with administrative duties."*

The committee sent out many questionnaires with interesting results. Nearly 60 per cent of a group of 4,000 recent graduates indicated their belief that cultural studies were either of considerable value or indispensable, compared with 40 per cent who varied their estimate of value from "worth the time spent" to "negligible."†

Fifty-one per cent said that economic subjects were regrettable omissions from their college courses and 26 per cent indicated the lack of English courses as similarly unfortunate.‡

The committee, rather sadly, I think, came to this conclusion: "It is quite clear that the engineers are more strongly in favor of extended training in economics and its application than are the teachers."§ It is perhaps too much to expect that faculty members teaching engineer-

* Presented before the Ohio Section, S. P. E. E., April 17, 1937.
† Potter, *New York Times*, October 25, 1936.
‡ Hammond, *Letter to President*.

* *Report of the Investigation of Engineering Education*, Vol. 1, page 485.
† *Harpers Magazine*, September, 1936, page 391.
‡ *Ibid.*, page 434.
* *Ibid.*, Vol. 2, page 1060.
† *Ibid.*, Vol. 1, page 241.
‡ *Idid.*, Vol. 1, page 207.
§ *Ibid.*, Vol. 1, page 401.

ing subjects should grant that time is well spent if it is taken away from engineering subjects and given over to more general problems.

The committee analyzed and summarized the opinions of nearly 8,000 carefully picked engineers as favoring the following principles.

1. Moderate diversity of curricula, but tending away from specialization.
2. Dominance of scientific and broadly technical content.
3. Inclusion of a well-identified core of required subject matter in common.
4. Inclusion at all stages of subjects of purely cultural value.
5. Due emphasis on the economic aspects of engineering and on its concern with administration and management.
6. Coherence of arrangement and coördination with related subjects.
7. Thoroughness rather than completeness of detail.||

Certainly no philosophical student of education can hesitate to agree with this outline. Would not President Roosevelt himself find this a well balanced statement of the objectives of engineering education—hinting at the sociological import of the engineer's work even if it does not boldly emphasize it?

The important question of course is: How far are we carrying out these recommendations in actual practice? Are we paying lip service to "inclusion at all stages of subjects of cultural value" and "due emphasis on economic aspects" while at the same time saying "well in our case I guess about two 'non-engineering' courses will be sufficient, and that will leave a little more time for advanced machine design, or indeterminate structures, or electric communications?"

That the question is not yet quite satisfactorily answered is hinted not only in the President's Letter but in our periodical masterpiece, *Fortune*. Describing the dilemma of our leading engineering institution the writer says: "To take a seventeen year old boy, innocent of anything but high-school chemistry, physics, and algebra, put him through a four year mill, and turn him out making sense in a world full of entropy, thryatron tubes, three stage turbines: . . that is no small chore. Particularly is it no small chore when *(a)* some employers are constantly complaining that the Institute's eighteen different formal courses and twenty-odd option combinations still don't give them graduates with enough specialization; and *(b)* the Institute graduate in after life mourns that the Institute didn't give him enough broadening non-technical courses to make him able to appreciate the Good Life."*

The whole problem was approached again at the meeting of the Society for the Promotion of Engineering Education at Wisconsin. President Gaines took as the text of his address the quotation from James Bryce: "All education has two sides. It means to impart the knowledge, the skill, the habits of diligence and concentration which are needed to insure practical success. It also means to implant taste, to cultivate the imagination, and the emotions." Dean Kimball of Cornell spoke of the three great influences on character-learning, morals, and manners and quoted Plato for his definition of an educated man, and Dean Sacketi of Pennsylvania State quoted Goethe and Emerson to clarify the character education which engineering instructors should attempt to give.

So everywhere are engineering educators proclaiming their adherence to the philosophy of a broad cultural foundation. What are they actually doing in curriculum revision to make this possible? We cannot be any too well delighted with the answer. I chose at random six engineering schools of high grade and studied their curricula in mechanical engineering, not with any view toward the writing of this paper, but to compare them with the new curriculum which we have just adopted at the University of Toledo.

The engineering schools studied were Brown, Case, Cornell, M. I. T., Worcester, Yale, and Toledo. I included mathematics, physics, chemistry, and engineering proper as engineering subjects. Everything else I called non-engineering, including English, economics, history, political science, "seminar," "reports," "introductory lecture," "trips," etc. Physical education, gymnasium, and military training were not counted at all. It is always dangerous to try to tell from a catalog exactly how a given curriculum is administered, but the following figures are probably not greatly in error.

At Brown 20 per cent of the curriculum is non-engineering; at Case, 16 per cent; at Cornell, 9 per cent; at M. I. T., 15 per cent; at Worcester, 18 per cent; at Yale, 24 per cent, and at Toledo 21 per cent.

Leaving out Yale, Brown, and Toledo the average for the non-technical work at the other four schools of engineering is 15 per cent. *In other words, these schools are taking high school boys of eighteen, giving them a very stiff four year course with only one-sixth of their attention given to anything outside professional work. No other profession such as law, medicine, teaching, or the ministry dreams of giving so narrow a preparation for life. Probably no chemist, journalist, or graduate of a school of business administration could get such a narrow education at any college in the country. Are we justified in giving it to engineers?*

The pleas from the engineering educator are two: (1) We have to give as much engineering in four years as does our competing engineering school or all our students will go there. (2) Our graduates must have this advanced knowledge to get a job.

The second argument I think is specious. No matter how much we try to cram into a boy's head in four years we cannot make him an engineer. We can give him only the foundation; if he is to rise in his profession it will be only through long years of experience and study in his special field. How many engineering graduates are called upon to design important and complicated engineering structures when they first graduate? Not one in a thousand, I wager. Certainly, I, myself, had to serve an apprenticeship with checkers going over everything I turned out in the office, and with assistant engineers over me to check decisions in the field. Has it not been thus with every young engineer? And if so, cannot we spare a little more time in his crowded curriculum to give him a chance to think about the other side of his life, even at the expense of a few hours stolen from advanced specialized courses of engineering?

A relatively small increase would make a great difference. If the average of the four lower schools mentioned, 15 per cent, were raised to that of the three higher schools, 22 per cent, the increase would be only 7 per cent. If that were done, it would to a considerable extent remove the engineering educator's plea number one, that of "keeping up with the Joneses."

It is my personal opinion that 22 per cent is too low, that 30 per cent would be better. Ten years after graduation I believe you would have stronger men in the engineering profession if about one-third of their time during those four college years were spent in subjects outside of engineering. I have seen many college gradu-

(Continued on page 24)

|| *Ibid.*, Vol. 2, page 1248 .
* *Fortune*, November, 1936, page 132.

CURRENT EDITORIAL OPINION

The Engineer Hoist On His Own Petard

From the February 1938 monthly bulletin of the Pennsylvania State Planning Board.

Man is constantly being mangled by his machines; not alone physically but economically and spiritually as well.

The menace of the machine lies in its hazards of undigested power rather than in anything sinister or occult in the machine (and by machine is meant all manner of device: mechanical, administrative, and institutional). The machine has been made by man in his own image; if the fruits of the machine be evil it is because man himself is wicked and undisciplined.

Adam Smith saw the whole social order as a vast machine, its component parts nicely reciprocating under the providential competition of enterprisers. Those of his optimistic school who still hold that society has given to business a mandate for the dissipation of scarcities can hardly insist with propriety that society owes business any guarantees beyond the point at which business is invested with social utility.

For many areas of consumption the constraints and profits of scarcity have been reduced by the competitive improvement of technology.

Thus is the engineer in the service of enterprisers "hoist," as it were, "on his own petard."

Business—whether manufacture, merchandising or finance,—accustomed to rely upon the blind and unplanned dependency of society must now reconcile itself to the just disciplines of an orderly and planned social order.

Here at last the economic order is being confronted with Veblen's distinction between business and industry. The social-economic compulsions are bringing enterprisers —many of them already quite socially minded,—to the acceptance of that social overhead which the obsolescence of man-power and human skills is translating into surpluses of leisure which society, somehow, will need to liquidate into planned products of beauty, joy and dignity.

The emphasis is already perceptibly passing from quantity of supply to quality and economy of supply; the virtues of good management are being increasingly transferred from private to public affairs.

And in this evolution of society out of laissez faire into a planned order of social and economic security the machine may be counted on to play the major role,—sinister or benign.

(Editor's Note: Possibly some of our socially minded professional engineers would like to reply to this Editorial.)

What Is Your Objective?

—EDITORIAL—

(From the Arc Welding Foundation News)

Objectives inspire the lives of all ambitious men. They give meaning to thought and purpose to action. They instill confidence. They impart "drive." They create oneness of purpose. They keep men "everlastingly at it," even in face of discouragement and disappointment. Objectives urge men to apply energy which they did not know they possessed. Objectives bring to light hidden depths of power. They elevate men of average ability to greatness and lead all men to accomplishments of which they did not believe themselves capable. Objectives are powerful forces, influencing men's lives.

The true worth of objectives is gauged by the benefits which their achievement produces. Their value increases as the number of those who benefit increases. Certainly, those objectives are most desirable which not only bring rewards to the individuals who achieve them but to others as well.

Benefits produced by attainment of objectives may be only cultural. Or they may be economic, social or commercial. It is with benefits of this latter type that the Lincoln Foundation is concerned . . . benefits which invariably result from achievement of engineering objectives.

The objective of every true engineer, designer and architect is to produce—with the material and means at his command—the best products or structures of which he is capable.

To achieve his objective, the engineer, designer or architect must not remain content with "things as they are." He must seek new and better materials and means of attaining his ends. He must investigate and know new means which can aid him in reaching his objective. And finding a new and useful means, he must apply it to the best of his ability. Then, and then only, does achievement of engineering objectives produce greatest benefits for mankind.

Achievement of this type of engineering objective is being encouraged by the $200,000 awards for engineering studies, the Foundation is sponsoring. By offering substantial awards for engineering studies, tne Foundation is stimulating engineers, designers, architects and others to acquire knowledge of a new means of producing products and structures which is believed to possess advantages over less modern processes.

Those who participate in the Award Program and conduct engineering studies in accordance with the Foundation's plan will be seeking objectives which are capable of producing large benefits—not only for those who carry out the studies but for industry in particular and mankind in general. The benefits accruing to the individuals achieving the objective will be a share in the $200,000 Fund, probable personal advancement, professional prestige and national recognition. To industry in particular and man-kind in general, the benefits will be improved products and structures.

—These benefits will have been produced by engineers, designers, architects and others who seek knowledge of new and better means of achieving their objectives . . . men who do not remain content with things as they are. Men of this type are invited to take advantage of the opportunity offered them by the Award Program to achieve their objectives.

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LEGISLATIVE INFORMATION

(Continued from page 8)

include, but shall not be limited to, persons performing architectural, technical engineering or drafting duties for another for hire.

Section 2. This act shall take effect immediately.

NEW BILL—1ST REPORT

Assembly Intro. No. 1203, Print No. 1313 by Mr. Murray—Internal Affairs Com.

An act to amend the town law, in relation to the employment by town of attorneys and engineers.

Section 1. Subdivision two of Section twenty of chapter six hundred thirty-four of the laws of nineteen hundred thirty-two, entitled "An act relating to towns, constituting chapter sixty-two of the consolidated laws," is hereby repealed and such section is hereby amended by inserting therein, in lieu thereof, a new subdivision, to be subdivision two, to read as follows:

2. (a). The town board may employ an attorney and pay him a reasonable compensation. The board may also, from time to time, employ such attorney to attend to any other legal matters not included in the original compensation and pay him for such services. Such compensation shall be in addition to the town attorney's annual compensation and shall be a legal charge against the town. The board also may, from time to time, as necessity requires, employ an attorney, other than the one regularly employed, to pass upon the validity of municipal tax notes, certificates of indebtedness, bonds and other town obligations, or to perform any other special service for the town, and pay a reasonable compensation therefor, and the expense may be a legal charge against the town.

(b). The town board may employ a town engineer and pay him a reasonable compensation.

Sec. 2. This act shall take effect immediately.

Comment This bill is very explicit as regards the employment of attorneys and in providing for their additional compensation.

The present laws governing forty-four first class towns, provide for the employment of a town engineer. The second class towns, of which there are eight hundred eighty-eight, may do so provided they wish to spend the $3,000 a year allotment in this manner. Invariably, however, this limited amount is budgeted for other purposes. They may, however, employ engineers for districting purposes with the understanding that upon the approval by the State and town of their work, compensation will be paid. This often times results in a severe handicap to the engineer in that payment of compensation is dependent upon the acceptance of his plans by these two agencies. It promotes speculative engineering.

It is doubtful that very many second class towns would employ a town engineer and were they to do so, that this condition would be alleviated.

While this bill may present some advantages to the engineer and to the community, it is drawn very nicely for the attorney and most incompletely for the engineer. It's present form leaves much to be desired.

NEW BILLS—1ST REPORT

Senate Intro. No. 481, Print No. 489 by Mr. Schwartzwald—Health Committee

Assembly Intro. No. 496, Print No. 505 by Mr. Burgdorf—Health Committee

Amends sections 76 and 76-a of the Public Health Law in relation to pollution of waters. Designed to make these sections consistent with each other and to eliminate the inference that the State Commissioner of Health may permit the creation of a public health menace by allowing the discharge of sewage "in quantities injurious to health." (Under existing law, Section 76-a grants power to the Commissioner of Heatlh to act in case of either a public health menace or public nuisance caused by discharge of sewage or wastes, but Section 76 obligates a municipality or industry to obtain a permit only when such discharge is "in quantities injurious to health.") These bills would also remove the present exemption as applying to the discharge of industrial wastes, if such discharges create a public health menace or a public nuisance.

Senate Intro. No. 552, Print No. 568 by Mr. Cheney—Ways and Means Committee

Assembly Intro. No. 700, Print No. 720 by Mr. Burney—Ways and Means Committee

Adds a new section to Article V of the Public Health Law extending authority of State Commissioner of Health in regard to scientific and comprehensive investigations of the pollution of waters of the State, research and experiments to devise practical means of treating industrial wastes, the appointment of advisory committees for the State as a whole or in local watersheds to formulate policies and procedure for the control of pollution and specification of degrees of sewage and wastes treatment for the various waters of the State. Appropriates $50,000 to the State Department of Health for employment of personnel and equipment, including mobile laboratories, to carry out the provisions of the Act.

Comment These two bills provide for the expediting of the program of the State Department of Health for the elimination of the pollution of the waters of the State of New York and provide this Department with the necessary added authority and funds.

[ ] matter deleted ——— new matter

NEW BILLS—1ST REPORT FOR INFORMATION ONLY

Senate Intro. No. 895, Print No. 974 by Mr. Feld—Education Committee

An act to amend the education law, in relation to endorsement of foreign licenses.

Section 1. Subdivision three of section fifty-one of chapter twenty-one of the laws of nineteen hundred nine, entitled "An act relating to education, constituting chapter sixteen of the consolidated laws," as last amended by chapter six hundred twelve of the laws of nineteen hundred thirty-five, is hereby amended to read as follows:

3. And the regent shall [have further power to] indorse a license issued by a legally constituted board of examiners in another state or country upon satisfactory evidence that the requirements for the issuance of such license were substantially the equivalent of the requirement in force in this state *or foreign state or country* when such license was issued, and that the applicant has been in the lawful and reputable practice of his profession for a period of not less than five years prior to his making application for such indorsement. [When the evidence presented is not satisfyingly sufficient to warrant the indorsement of such license, the board of regents may require that the candidate for indorsement shall pass such subjects of the licensing examination specified by statute or regents' rule as should be required of the candidate to establish his worthiness to receive such indorsement.]

Sec. 2. This act shall take effect immediately.

Comment Makes endorsement by Regents Mandatory. The elimination of the last sentence in Section 3 threatens by implication the elimination of all similar savings provisions and safeguards in the various professional practice acts. May indirectly adversely affect engineers.

This bill, if advanced, would undoubtedly be vetoed by the Governor on these grounds.

It is felt that action on this bill by engineers is unnecessary at this time as it is being carefully watched by the regents, who are primarily concerned.

Assembly Intro. No. 1233 by Mr. Moffatt—Ways and Means Committee

Creates temporary commission to make study and analysis of financing methods and procedure of state and local highway construction and distribution of motor fuel taxes and motor vehicle fees and appropriates $15,000. Commission to be two senators, two assemblymen and three appointees of the Governor.

Assembly Intro. No. 1234, By Mr. Moffatt—Ways and Means Committee

Permits State Sup't. of Public Works to survey State highway system to relieve traffic congestion on main routes and to determine necessary by-passes. Available funds for highways to be used for this purpose.

EDITORIAL

The ideal plan for an organization, whether commercial, industrial or professional, would be for that body to be self-governing thus to require but a minimum of outside control by governmental agencies.

Engineers must realize that success of an individual engineer redounds to the credit of all. In safeguarding property, health and safety of the people, engineers must therefore, see to it that the work is in safe hands; otherwise failure makes "dubs" of us all.

In self-government of the professional, engineers must hew strictly to the line of probity of character and adequate professional preparation on the part of those who would enter. When supplying information to the State Registration Board for Professional Engineers respecting qualifications of applicants it is the duty of engineers to observe the same care as to quality of material for the professional structure as they would in specifying material for heavily stressed members of a monumental construction.

If you will scan the list of noted speakers who have addressed the Chapter meetings within the last year you will be struck by their outstanding character. Throughout this year the program committee resolves to secure even better speakers if possible. It is up to this organization to provide as large and as enthusiastic an audience as the membership affords.

The speaker will judge the prestige of the Chapter by the size of his audience. Furthermore, a fair-sized crowd stimulates the speaker to his best efforts. Having given of his time and thought to address a scattered few forces him to the conclusion he has wasted his endeavors on the desert air. COME TO MEETINGS.

CHANGE OF ADDRESS

If the address at which you receive your AMERICAN ENGINEER has been changed, notify the Executive Secretary (*not* the Editor) without delay!

—Don't Forget—

All notices of change of address should be sent promptly to:

WILLARD S. CONLON
Executive Secretary
National Press Building
Washington, D. C.

All Things Considered

By Howard Vincent O'Brien

HE WAS what is known as "aged" and he said he would take only a few minutes of my time—just wanted to talk a bit about the American business man and how, as he put it, the poor fellow had lost his guts.

"I think I know the reason, too," said my visitor, hitching his chair closer to mine and biting off a chunk of Plowboy. "The business man of today KNOWS too dinged much. The first thing he does when he gets up in the morning is turn on the radio and learn what the weather's going to be. If he drives to town he listens to the radio in his car and keeps on learning things—the price of hogs, maybe, or carloadings or what price prime yearling heifers are fetching.

"There's sure to be a bucketshop in the lobby of his building, and he drops in there for a squint at the market. Then he goes up to his office, were he finds a sheaf of reports on the state of the nation laid out for him.

"Before he starts dictating answers to people who have asked for quotations on his goods, he makes a study of the bulletins sent him by the financial tipster service to which he subscribes.

"No sooner does he get through with the first batch of 'confidential' news than the postman brings him another set to sift. So it goes, the whole day through. He's so busy being on the 'inside' he hasn't time enough to get outside and hustle. He has hardly any time for his own business, and he's so frightened and fuddled by what he reads that he can't make any good use of the little time he has.

"He's like a hypochondriac, taking his temperature every twenty minutes with a busted thermometer. He may feel pretty good, but the thermometer says he ought to be in bed. The cash register may ring like a doorbell and the pile of unfilled orders continue to rise, but according to the bunch of Wall Street statisticians, for whose dope he pays out several hundred dollars a year, it's going to be a terrible winter. And the poor sucker has learned to believe anything but his own ears and eyes.

"In my day we took it for granted that sometimes business was good and sometimes it wasn't. We figured profit and loss in five-year brackets—not from minute to minute. There weren't any bookkeeping machines in those days, and we didn't hire clerks to give us reports every half-hour. We got our market news from the newspapers, and we took them with a grain of salt because we knew that business was a gamble and was always going to be.

"We weren't much for 'efficiency,' but we generally knew where we stood. We aimed to take in more than we paid out, and if our bank balance grew we didn't need an auditor to tell us we were making money. When we lost money we didn't advertise the fact. Men didn't admit they were losing money until the sheriff was at the front door, ready to tack up his flag.

B'GUESS AND B'GOSH

"Business was pretty much b'guess and b'gosh, but hanged if I don't think we got along better than they do now."

STANDARDIZATION?

There is a growing tendency among State Societies and their chapters to name their publications after the general scheme of the National Society's publication THE AMERICAN ENGINEER. For example: the Illinois publication is *The Illinois Engi-* Pittsburgh Chapter of the Pennsylvania Society has its *Pittsburgh Engineer.*

If this were universally practiced, it might become an insignia of Professional Engineering groups, though, of course, in professional engineering societies there is no copyright or monopoly on the use of such a term.

Some standardization of names, however, would be advisable. But most important is the goal of having each State Society place its publication on the mailing list of all other State Societies, as well as the National Society's office at Washington, D. C.; the office of the National President in New York; that of D. B. Steinman, Father of the National Society of Professional Engineers; and by all means the editorial office of THE AMERICAN ENGINEER at Harrisburg, Pennsylvania.

One of the finest State publications we have seen is the annual convention number of the New Jersey State Society's *Hudson Engineer,* sponsored and compiled by the Hudson County Chapter of the New Jersey Society.

NEWS OF STATE SOCIETIES

EDITOR'S NOTE: If your State Society is not represented in this month's news, contact your State Secretary and ask him to send monthly information to the editor. Please put THE AMERICAN ENGINEER, 222 North Third Street, Harrisburg, Pennsylvania, on your mailing list for all chapter and State Society Bulletins.

RHODE ISLAND

President—JOHN V. KEILY

Secretary—CHARLES L. POOL

The Rhode Island Society of Professional Engineers has 51 members and at the regular meeting in December, held in Providence, R. I., the guest speaker was Engineer Willard S. Conlon, Executive Secretary of the National Society of Professional Engineers. Engr. Conlon outlined the formation and growth of the National Society, and spoke at length on the purposes of the Society and the progress of the work to date, especially in regard to obtaining favorable legislation at Washington. He touched also on matters of professional ethics. During and after the discourse Engr. Conlon clarified many points raised by the members present.

Engr. Conlon's address was preceded by a short business meeting at which a nominating committee was elected to recommend a slate for 1938 officers.

At the January 10th meeting the following officers were unanimously elected: President, John V. Keily; 1st Vice-President, John E. Meade; 2d Vice-President, Chas. W. Stewart; Secretary and National Director, Chas. L. Pool; Treasurer, Edw. O. Greene; Director for 1 year, Leon L. Holland; Director for 1 year, Jas. J. McIntyre; Director for 2 years, Wm. A. Steimer; Director for 2 years, Howard W. Congdon; Director for 3 years, Phillip S. Mancini; Director for 3 years, Jos. D. Guilmette.

After this meeting President Keily appointed the following committees:

Legislative Committee: John E. Meade, Honorary Chairman, Jos. D. Guilmette, Chairman, Alexander Addeo, Vice-Chairman, Francis W. Cullinan, Edward O. Greene, Phillip S. Mancini, Wendell S. Brown, Howard W. Congdon.

Press and Publicity Committee: James J. McIntyre, Chairman.

Membership Committee: Daniel O. Cargill, Chairman, Leon L. Holland, Wm. A. Steimer, Harry I. Roberts, Wm. J. Kerwin, Wm. J. Harlow.

Rules and Regulations Committee: Henry Isé, Joseph Wuraftic.

WASHINGTON

President—JOSEPH E. WICKSTROM

Secretary—KARL F. VAUGHN

The first annual meeting—induction meeting of Seattle Chapter for Kind County (Chapter No. 1, Washington Society of Professional Engineers) was held at a dinner meeting Thursday, January 27th, in the Dome Room of the Arctic Club, Seattle, Washington.

The meeting was called for organization by election of permanent officers of this Chapter and acceptance of By-laws. The meeting was well attended and we had as guests and speakers with us: Robert L. Rockwell, member of the State Examining Board for registration of engineers for the State of Washington and Engineer G. V. Robinson, President of the Oregon Society of Professional Engineers. A. B. Carter, Secretary of the Oregon State Engineers Examining Board sent his greetings by letter.

There were also present Engineer Casad, Chairman of Bremerton Chapter for Kitsap County No. 2, W. S. P. E. and the Secretary, Engineer Laurria A. Cave.

From the floor we had pertinent addresses pertaining to the status of the Professional Engineers. Cooperation and collaboration were made.

So far "Washington only spoke," last night, "Washington acts."

BY KARL F. VAUGHN,
Executive Secretary.

MASSACHUSETTS

Secretary— EDWARD C. BROWN

A meeting of the MASSACHUSETTS SOCIETY OF PROFESSIONAL ENGINEERS was held at the Hotel Statler, Boston, Mass. on December 28th.

The Society was fortunate in having as its guest, W. S. Conlon, Secretary of the National Society, who gave an interesting address on the progress of other Societies, also some of the accomplishments of the National Society in Legislative and other matters pertaining to the welfare of the profession.

The question period was especially helpful to the members, where questions of ethics and registration requirements were thoroughly discussed.

MISSOURI

President—E. W. CARLTON

Secretary—W. H. McDILL

At the banquet which preceded the area meeting of the Missouri Society of Professional Engineers in Jefferson City January 14th, President Carlton introduced the following prominent engineers of Missouri: C. W. Brown, Second Vice-President, Chief Engineer, Missouri State Highway Department; Prof. J. B. Butler, Past President, Prof. of Civil Engineering, M.S.M.; W. H. McDill, Secretary-Treasurer Executive-Director, Mo. Asphalt Association; H. E. Frech, Director-at-large, Dist. Engineer, Portland Cement Association, St. Louis; H. M. Brush, Director Division Engineer, Mo. State Hwy. Division No. 2, Macon, Mo; M. E. Countryman, Director Laboratory Engineer, Mo. State Hwy. Dept., Materials Laboratory, Jefferson City; L. W. Helmreich, Director Engineer, Water Department, Jefferson City, Mo.; Dr. C. E. Bardsley, Vice-President, Nat'l. Sec. Professional Engineers, Prof. of Hydraulic Engineering, M.S.M.

Other prominent engineers of the state who attended were: S. M. Rudder, Asst. Chief Engineer, Mo. State Hwy. Dept., St. Louis, Mo.; L. H. Pettis, City Engineer, City of St. Louis; Wm. Anderson, Director Mo. State Planning Board, Jefferson City; Moss Edwards, Consulting Engineer & County Highway Engineer, Mexico, Mo.; R. P. Cummins, Supt. of Equipment, Mo. State Hwy. Dept.; Jefferson City; L. R. Sachs, Bridge Engineer, Mo. State Hwy. Dept.; Jefferson City; L. H. Dodd, District Engineer, American Institute of Steel Construction, St. Louis; F. Ellis Johnson, Dean of Engineering, University of Missouri, Columbia, Mo.; W. R. Chedsey, Director, Missouri School of Mines.

OHIO

OHIO SOCIETY OF PROFESSIONAL ENGINEERS

New Officers

President, E. G. Cantwell, 222 E. Sycamore St., Columbus, Ohio; Vice President, Frank C. Tolles, 1140 Leader Building, Cleveland, Ohio; Vice President, Nelson J. Bell, Third National Bank Bldg., Dayton, Ohio; Secretary, John Laylin, Neil House, Columbus, Ohio; Treasurer, E. A. Lawrence, Rowlands Building, Columbus, Ohio.

OKLAHOMA

President—W. CLAUDE SALE

Secretary—C. A. LASHBROOK

OKLAHOMA SOCIETY OF PROFESSIONAL ENGINEERS

News Letter

The State convention was held in Tulsa on January 21 and 22, and the committee arranged a most interesting program, a copy of which is enclosed.

As you know, the general business session and the dinner and dance were closed sessions, for members in good standing only. It is the intention of this organization to benefit the general engineering profession as a whole and to create and maintain a friendship with those engineers that are not eligible to become members of the organization. For this reason, the committee decided to have four meetings during the convention to which all engineers are welcome and urged to attend; the first one being the joint session with the A.S.C.E. Friday afternoon. This meeting was not limited to members of O.S.P.E. nor to members of A.S.C.E., but was open to all engineers.

The next was the Friday-night meeting beginning with a program given by the Department of Public Safety, followed immediately by a sound picture of the construction of the Golden Gate Bridge. This was followed by the showing of a series of slides with sound equipment, which was prepared by Dr. Miller McClintock, Director, Bureau of State Traffic Research, Harvard University, and Norman Bel-Geddes, a noted designer.

Saturday noon luncheon was in charge of the Engineers' Club of Tulsa, and this meeting was not limited to members of the organization. The Saturday afternoon meeting was on the Grand River Dam Project, and under the direction of Engineer W. R. Holway. The banquet was at 7:00 o'clock, Saturday night, followed by a dance.

For the benefit of those who have missed reports made at the district meetings, the Committee on Enforcement has had an active year. It furnished testimony before a grand jury in one city recently, which resulted in the replacement of an unregistered man by Registered Professional Engineer as the City Engineer. In one of our larger cities, it prepared to enjoin the appointment of nonregistered men as City Engineer, and as Water Superintendent and Engineer. Due to the cooperation of the city officials, both places were filled with Registered Professional Engineers without further trouble. It participated in an injunction action to prevent payment of salary to an unregistered man acting as County Engineer in one of our eastern counties. The unregistered man left the county and has not attempted to practice engineering since. It has advised several out-of-state firms doing work in Oklahoma that they must have a registered engineer in order to continue their work in the state, and in every case this has been done. It has furnished information, legal interpretations, etc., to local engineers in at least six cities concerning the unlawful practice of engineering, and in each case the situations referred to were cleared up without further trouble. In another case, it gave valuable advice to the city officials of one of our cities concerning the entering into a contract with an unregistered engineer. The committee has also prevented the use of unlawful advertising in many cases. There are several other such cases as the ones mentioned above under advisement at this time. They urge the members of the Society to report with full details violations encountered.

The result of the annual election of members of the Board of Directors is as follows: For the five-year term, Engineers I. R. Holway, Ren G. Saxton, George G. Stein, R. L. Philips, and John J. Stobaugh, Jr. For the four-year term, Engineer C. T. Langford; and for the three-year term, Engineer W. R. Wolh.

We now have 600 members in the organization, with a few of these delinquent in their dues. If you should be one of these members, will you not give this your serious consideration by convention time and forward your dues to this office?

C. A. Lashbrook, Secretary.

NEW JERSEY

President—JAY A. JACOBS

Secretary—ERNEST F. WEEKS

THE HUDSON ENGINEER

Published Monthly by the Publicity Committee of the Professional Engineers Club of Hudson County, N. J.

FEBRUARY MEETING

Monday evening—February 28, 1938, 8:00 P. M., at Public Service Auditorium, Journal Square, Jersey City.

Guest Speaker: Mr. E. V. Whallon District Traffic Manager, United Air Lines presenting A New Absorbing Motion Picture "Coast to Coast by Plane."

THE MAN OF THE MONTH

For outstanding engineering achievements, service to community and service to profession, *The Hudson Engineer*, for the Professional Engineers' Club of Hudson County, honors one of the most active members in our engineering associations,

Engineer Joseph C. Maulbeck

Joe, as he is intimately known to his many friends and associates, was born in the West Hoboken section of Union City on the thirty-first of May. 1892.

He was educated in St. Joseph's School in Union City and Hoboken Academy, from which he graduated in 1909 after pursuing a four year academic course.

His engineering education was received in Cooper Union in New York City, graduating in 1916 with the degree of Bachelor of Science in Civil Engineering. He earned the degree of Civil Engineer in 1930.

During the Summer months while attending High School, Engineer Maulbeck was employed as an office assistant by his father, the late Sebastian Maulbeck, who was well known as a Civil Engineer and Land Surveyor in Union City.

Besides practicing engineering and surveying as Town Surveyor of West Hoboken he was employed by the Public Service Commission of New York as a draftsman on ventilation, drainage, subway and elevated structures.

During the period of 1917-1921 Engineer Maulbeck was employed by the State Highway Department in the various capacities of Assistant Civil Engineer, and later as Chief Divisional Inspector, as which he instructed a class of 20 men on the duties of inspectors on construction work.

From 1921-1926 and 1927-1928 he served as Town Surveyor of West Hoboken and after the consolidation, as City Engineer of the City of Union City. As City Engineer, he had direct charge of and supervised the preparation of plans, specifications and construction of a sewer system, several types of street improvements, installation and modernizing of the City Fire Alarm System and other municipal work. The total cost of work carried out under his direction and for which payments were made only upon his recommendation and approval amounted to about one and one-half million dollars.

Since 1929, Engineer Maulbeck has been in private practice as a consulting engineer and surveyor. He is licensed in the State of New Jersey as a Sanitary, Municipal and Highway Engineer and Land Surveyor and was one of the first engineers to register when the law went into effect. His license number is No. 29.

Joe has been actively engaged in the affairs of his professional societies, having served as Vice-President of the Professional Engineers' Club, Treasurer of the Convention Committee, 1938, of the State Association, and as chairman of numerous committees.

Besides being a member of the Club, State Association and the National Society, he is a certified member of the American Association of Engineers, and the Society of American Military Engineers.

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ILLINOIS

President—W. D. JONES

Secretary—H. E. BABBITT

ADDRESS BY PRESIDENT JONES AT THE 53rd ANNUAL MEETING

The Illinois Society of Engineers has accomplished several important things during the last year. Three new Chapters have been formed. Our Secretary, Professor Babbitt, our President-elect, Mr. Walraven, and our Vice-President-elect, Mr. Amstutz, together with the local officers of said Chapters, have all been prime movers in the forming of these chapters. The Illinois Engineering Council has been started. Mr. Jacob Harman is chairman and Mr. L. K. Sherman and Mr. W. D. Gerber are members of our committee to form and to represent the Illinois Society of Engineers upon that Council. All are doing wonderful work. We secured the passage of an act for the Registration of Land Surveyors. Many of our members did valiant work in getting that act passed but the principal credit is due to Engineer A. M. Kaindl, a representative in the Illinois House from the 23rd district and a member of the Illinois Society of Engineers. We should encourage more engineers to become members of the legislature. Why leave all the offices to lawyers? Professor Rayner proposed a conference of surveyors. He now heads a committee of members of Illinois Society of Engineers and the University of Illinois to arrange such a conference. We failed in efforts to secure the passage of a Bill for the Registration of Professional Engineers. But—we are not through. Our President-elect, Mr. Walraven, is very enthusiastic for such an Act. He lives at Springfield and has the ability and the disposition to prepare the way for our success in 1939 when we hope our vice-President-elect will head our Society.

It is important that ALL should understand what we are trying to do. It is said that the opposition to our bill, started with the engineers who drive engines because they thougnt that we were trying to take from them their right to be called engineers. A story is told that Herbert Hoover, some years before he or anyone had any idea that he would ever be president of the United States, was returning to America from England and met an English lady at the dinner table, with whom he carried on very pleasant conversations. Just before they reached America she asked Hoover if he would be offended if she asked him a personal question. "No," he replied, "What is it?" She asked, "What is your business or profession?" He replied, "I am an engineer." "Oh," she replied, "I thought you were a gentleman." This story is told to Professional Engineers with the idea that they will assume that this English woman thought an Engineer who drives an engine is not a gentleman. Perhaps she would also say that a Professional Engineer is not a gentleman. In any case, it is certain, this English woman was a snob. I have met many Engineers who drive engines and all have been gentlemen. We have no right to say that an engine driver shall not call himself an engineer. If we ever had any such right, we have slept on it so long that we have lost it. But, we have been called Engineers long before there were any engines to drive. We are a different class of Engineers and we think that it is proper for us to have a law classifying ourselves as Professional Engineers, so that the courts will not be able to say that under the definition of an engineer, an engine driver is competent to design a sewer system. A certain judge in a Kentucky court did so rule.

And now may I say that no higher honor, and no greater benefit, can be conferred on any engineer in Illinois than to be elected and to serve as President of the Illinois Society of Engineers, which is a college of Engineering; the best engineers in the State have given many papers before this Society and no man can listen to those papers and take the interest in the Society that he must take, to be elected and to serve as President without receiving a post graduate course in engineering.

I wish to thank our Secretary, Prof. Babbitt, all members of the Board of Direction and in fact all members of the Society for giving my administration any success it has had. To you, President Walraven, I wish to say that I know your administration is going to be more successful; not only because of your great ability and your disposition to put forth your best efforts to help us all, but also because we all are going to get behind you and push.

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LAKE COUNTY CHAPTER MEETING

The Lake County Chapter of the Illinois Society of Engineers held a dinner meeting at the Karcher Hotel January 12th.

This being the first meeting of the year it was presided over by our newly elected President, Mr. James Anderson the third.

After the reading of the minutes of the previous meeting, by our new Secretary, Mr. Andrew Klarkowski, Mr. Wood was complimented as chairman of the entertainment committee on the fine dinner and meeting place provided.

A motion was then made by Mr. Lobdell, that a gavel be provided for the new president—one made from a certain kind of elm preferred.

Mr. Henry Bleck spoke at length on Robert's Rules of Order; there being no gavel.

NEW YORK

President—ALFRED E. ROCHE

Secretary—W. A. STUBBS

ALBANY COUNTY CHAPTER

Officers for 1938

President, C. George Gardner, Chief Engr. N. Y. Power & Light Corp. 126 State St. Albany, N. Y.; Vice-Pres., Hyatt, Louis C., Work Mgr., Consolidated Car Heating Co. 413 N. Pearl St. Albany, N. Y.; Secy.-Treas. Benedict, Walter C., Traffic Engineer, State Traffic Comm. State Office Bldg. Annex, Albany, N. Y.

Directors

Wheeler, Robert C., Barker & Wheeler, Consulting Engr. 36 State St. Albany; Lame, Herman F. Consulting Engr. Chamber of Commerce Bldg. 74 Chapel St.; Brandt, A. W., Commissioner of Highways, State Office Bldg. Albany; Post, C. W., Chief Engineer, W.P.A. 38 Euclid Ave. Albany; Harrington, Arthur W. District Engr. U.S.G.S. 526 Federal Bldg. Albany; Martin, John W. Chief Engr. James McKinney & Son, 927 B'way, Albany.

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QUEENS COUNTY CHAPTER

Officers for 1938

President, George H. Bruns, 180-12 Hillside Ave. Jamaica; 1st Vice-President, Martin Nelson, Boro Hall, Long Island City; 2nd Vice-President, Walter Warrendorf, 48-37 64th St. Woodside; Treasurer, Charles S. Stratton, 8921 118th St. Richmond Hill; Financial Secy., Thomas Graham, 8621 86th St. Woodhaven.

—

A meeting of Zone Five of the New York State Society of Professional Engineers was held at the University Club in the city of Albany, February 15th. Dinner served at 6:30 p.m.

Addresses made by Colonel Frederick Stuart Greene, Superintendent of New York State Department of Public Works; Dr. Harlan H. Horner, Assistant Commissioner of Higher Education, State of New York.

Alfred E. Roche, President of New York State Society; Elmer C. Lawton, Director of Zone Five; C. George Gardner, President Albany County Chapter; Edward J. Kilcawley, President Rensselaer County Chapter; Morris M. Cohn, President Schenectady County Chapter.

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STEUBEN AREA CHAPTER OF THE N. Y. STATE SOCIETY OF PROFESSIONAL ENGINEERS

Annual Report of Secretary

The Steuben Area Chapter has shown admirable activities during the year 1937 thanks to the interest displayed by the members of the Chapter.

During the year 9 Chapter meetings were held: 2 Special Executive meetings; 6 meetings of the Ithaca Section of ASCE were attended by members; 3 State Soc. Meetings were attended by members of the Chapter.

Meetings were held:

January 5th: Annual meeting held in Corning which was attended by 19 members. As considerable Chapter business had to be transacted, no special speaker was provided. New officers were elected, President, J. H. Adolph; Vice-Pres., A. C. Jordan; Secr.-Treas., H. F. Eilers; Directors, L. Ketchum and A. K. Tietzel.

As Engr. Adolph was transferred from Steuben Area district, Engr. A. C. Jordan assumed the duties of President and Engr. H. E. Snyder was named Vice President of the Chapter.

February 9. Meeting was held in Hornell and was attended by 20 members and 18 guests. Professor H. O. Burdick of Alfred University gave a very interesting lecture on "Chemical Factors of early Development."

March 2. A meeting was held in Elmira attended by 18 members and 9 guests. Mr. Arthur L. Mann, Chief of the Bureau of Industrial Service of Albany spoke on "Some Essentials of Leadership." Committees were named by President Jordan.

March 5. Midwinter Meeting of the N.Y. S.S. was held in Albany which was attended by Engr's. Jordan, Snyder, Eilers, Drake, Ehrenrich, Hunter and Wright.

April 6. Meeting held in Corning was attended by 15 members and 15 guests. Engineer J. Leo Scanlon spoke on Laws now before the New York Legislature affecting the Engineer. A lengthy discussion was held on this subject.

The question of admitting engineering graduates to the Chapter as Associates was discussed and a Resolution adopted authorizing the same.

May 4. Meeting in Hornell was attended by 24 members and 15 guests. Mr. Jos Boone of the Research Laboratory of Eastman Kodak Co. gave an illustrated talk on High Speed Photography.

May 22. Annual Meeting of the N.Y.S.S.-P.E. was held in New York. Engr. Snyder represented the Steuben Area Chapter.

June 1. Meeting held in Elmira, present were 13 members and 10 guests. Engr. C. C. Hunter spoke on the Sewage Disposal System of the City of Elmira.

June 24. A meeting of Presidents and Officers of the Chapters of the Southern District was called by President A. E. Roche of the N.Y.S.S. which was held in Elmira. Matters pertaining to the benefit of the State Society were discussed.

July 22. A special meeting of the Executive officers of the Chapter was held in Corning to act upon the question of attitude the Professional Engineer should adopt regards the Wagner Labor Relation Act. President Arthur V. Sheridan, of the National Society had requested that the opinions of all the Chapters of Professional Engineers as well as the Medical and Legal Professions be solicited.

Summer recess from June to September.

Oct. 5. Meeting was held in Corning and was attended by 12 members and 12 guests. J. G. Phillips spoke on Modern Application of Technical Classes.

Nov. 23. Business meeting held in Hornell without speaker. 7 members were present.

Dec. 10. Joint meeting with the Ithaca Section was held in Elmira with Engineer H. H. Foster as Speaker. The illustrated talk dealt with Engineering problems and progress of the New York World's Fair of 1939. 27 members of Steuben Area Chapter were present, 18 members of the A.S.C.E. and 46 guests.

The Steuben Area Chapter has now 47 members.

H. F. Eilers
Secy.-Treas.

INDIANA

President—SULTAN G. COHEN

Secretary—V. V. SMYTHE

I. S. P. E. NEWS LETTER

Issued by the Indiana Society of Professional Engineers, Inc.

Editor E. W. Watkins

Operations Mgr. W. A. Miller
Circulation Mgr. G. L. Knoll

I. S. P. E. HOLDS SUCCESSFUL CONVENTION

Some 400 engineers attested to the development of a professional consciousness in Indiana at our First Convention at the Claypool Hotel, Indianapolis in Dec. From the standpoints of attendance, enthusiasm, and the quality of program presented, the convention was a gratifying success. The cause of the professional engineer took tangible form and received a definite impetus from the unified interest and efforts of the group assembled. A large part of the credit for the success should go to Chmn. M. G. 'Ole' Johnson and his convention committee, consisting of members of the Executive Board.

That the professional engineer is deeply interested in his profession and its relation to the public welfare was evidenced in the attentive group that was present.

The high light of the convention was the banquet in the evening in the Riley Room of the hotel. Wm. M. Holland, Secretary of the Indiana Highway Constructors, Inc., presided as toastmaster. The society was addressed by Charles W. Chase, President of Indianapolis Railways and Perry T. Ford Vice-President of the National Society of Professional Engineers.

PRESIDENT COHEN REVIEWS SOCIETY'S DEVELOPMENT

Pres. Cohen, in his report, gave a review of the activities of the Society during the year, and from the origin of the Society traced its development to its present status, with the largest single technical membership in the state. He paid tribute to the engineers who headed the first committees of the society and who initiated the activities that now are a permanent part of our organization's program.

Pres. Cohen outlined the work that lies before the Society in the way of enforcement, and stressed the need for an educational program to acquaint engineers with our registration law, and the obligation of engineers outside of public employ to register.

The employment of a full time executive secretary was placed before the organization as a goal to be attained as soon as finances permit. Pres. Cohen closed his report with a challenge to the members to develop the possibilities that lie ahead and make for a better profession.

EFFECT OF DEVELOPING A PROFESSIONAL CONSCIOUSNESS

National Vice-President Perry Ford's inspirational address on the Effect of Developing a Professional Consciousness was a challenge to the engineer to govern his work and his action to the end that Engineering shall merit always the designation of an honorable and learned profession.

Engr. Ford described the organization of the Ohio Society of Professional Engineers with its strong local chapters forming the backbone of the organization. He recalled the difficulties that the Ohio Society had encountered in securing the desirable legislation they have effected to restrict the practice of MCREA STARTS HERE March 2, 1938—professional engineering to registered engineers, and the constant efforts of the society to improve the profession and protect the public welfare. The results accomplished by the Ohio society can be duplicated in other states Engr. Ford said, when service, public welfare and the honor and standing of the profession precede any other consideration.

RESOLUTIONS ADOPTED AT FIRST CONVENTION

Resolution No. 1. The Society recommended a greater utilization by the Indiana State Board of Registration for Professional Engineers and Land Surveyors of its powers of policing and prosecution in the enforcement of the Registration Act, and pledged to the Board the vigorous support of the society in any action required by a policy of strict enforcement of the act.

Resolution No. 2. The society extended a life membership to Prof. R. L. McCormick, retired head of the Civil Engineering Dept. of Rose-Polytechnic Institue, who served as chairman of Indiana's first Registration Board for Professional Engineers and who holds Indiana's Registration Certificate No. 1.

Resolution No. 3. The Society recommended that the State Board of Registration make use of available funds within its budget for an educational program to extend knowledge of the registration law among practicing engineers, and urged that the Board secure an additional transfer of funds for this work if necessary.

Resolution No. 4. The Society went on record as opposing the proposed cancelation of the 1939 authorization for Federal Aid Highways and also opposing the principle of diverting monies collected as taxes on motor vehicle transportation to uses other than highway construction, improvement and maintenance.

ST. JOSEPH VALLEY CHAPTER FORMED

Engr. Herb. Brunsma, of the Chapter Activities Committee, announces the formation of the second local chapter of the Indiana Society of Professional Engineers. The St. Joseph Valley Chapter, embracing the counties of St. Joseph, LaPorte, Marshall, Starke and Elkhart, was formed on January 18th when Engrs. Cohen, Johnson, Cooper and Brunsma met with a group of engineers assembled at South Bend.

Pres. Cohen, of state chapter, addressed the thirty or more engineers at the dinner meeting, and after short talks by Engrs. Johnson and Brunsma, the chapter was formed on a temporary basis for a ninety day period.

Officers elected were D. L. Warren, Pres.; W. G. Wiekamp, Vice-Pres.; and C. A. Nelson, Secy.-Treas. Committees were immediately appointed by the President and the next meeting set for February 2nd.

COHEN ADDRESSES CALUMET CHAPTER

Pres. Cohen attended the January meeting of the Calumet Chapter of the Indiana Society of Professional Engineers and addressed the local Society. Engr. Cohen, who was accompanied by Engr. W. W. Hadley, reported a very interesting and enthusiastic meeting. Also included on the program were talks by Engr. John W. Wheeler, former member of the State Highway Commission of Indiana, and Engr. Hal. G. Sours, National Director of the Ohio Society of Professional Engineers.

I. E .C. ANNOUNCES ANNUAL MEETING

The annual meeting of the Indiana Engineering Council was held at the Lincoln Hotel in Indianapolis on Friday, February 25th, Engr. Homer Rupard is Secretary of the Council.

Sessions were held throughout the day, as has been the custom, with a breakfast meeting of the Administrative Council opening the day's activities. The morning sessions were devoted to group meetings of the various member organizations. Following an informal luncheon a short business session was held.

On the afternoon program, the A. S. C. E. sponsored the exhibition of a motion picture of the erection of the Golden Gate Bridge in San Francisco. The picture was prefaced by a brief talk by Prof. C. A. Ellis, of Purdue, on the construction of the bridge.

The annual meeting closed with a banquet session at the hotel. Mr. L. W. Wallace, Director of Research and Development of the Crane Co., was to be the banquet speaker. Mr. Wallace is a Purdue University graduate, a former Director of Research of the American Railway Engineering Association and a former Secretary of the American Engineering Council.

NEW TREASURER APPOINTED

At the meeting of the Executive Board, following the regular January meeting of the Society, Engr. Earl Carter, present National Director, was appointed to fill the unexpired term of Treasurer H. O. Garman who tendered his resignation.

Due to the pressure of his business, Engr. Garman requested that he be relieved of his duties as soon as a new treasurer was appointed and qualified. He expressed regret that his private affairs made this action necessary. An auditing committee consisting of H. Brunsma, D. H. Payne and J. E. Loer was appointed to audit the treasurer's accounts preparatory to transferring the funds to the new treasurer.

CONTACT COMMITTEE APPOINTED

At the January meeting of the Society, Pres. Cohen announced the receipt of a letter from the Registration Board reporting their favorable action on the resolution adopted at the annual meeting in regard to sponsoring an educational program among the practicing engineers of the state. The resolution recommended that the Board request additional funds for this work during the remainder of the present budget period.

In order to fully cooperate with the Board in planning such a program, a committee was appointed to work with the Registration Board. Engr. W. J. Boatright was named chairman of the Committee for Registration Board Contacts. Other members of the committee are M. G. Johnson, C. S. Mitchell (Calumet Chapter), Ralph Simpson and L. V. Sheridan.

ENGINEERS TO ASSIST IN BUILDING CODE REVISION

Through a letter from Mr. Ralph O. Yeager, President of the Indiana Society of Architects, the Indiana Society of Engineers has been invited to cooperate in seeking revision of the present State Building Code.

Pres. Cohen has appointed the following committee to cooperate with the Society of Architects in this work. Engr. B. B. Straight, Chairman; Emmet G. Fowler, Frank Schutt, Carl Geupel and L. T. Gootee, members.

An endeavor will be made to bring about a new and up to date State Building Code, School House Law and House Law. After proper research and study, the material will be presented at the next legislature for the desired action.

NEWS LETTER STAFF EXPANDED

In line with the recommendation of the Public Relations Committee at the annual meeting, Pres. Cohen has appointed two additional members to the staff of the *News Letter*. The permanent staff of the *News Letter* will now consist of E. W. Watkins, Editor; W. A. Miller, Operations Manager, and G. L. Knoll, Circulation Manager.

The staff will gladly welcome any suggestions from the members regarding the contents or the distribution of this paper.

EMPLOYMENT SERVICE

Whenever possible the *News Letter* will publish information regarding engineering positions open and also engineers available for positions. At the present time, there is available a construction engineer with twenty years experience in highway road and bridge construction, railroad track bridge layout and railroad maintenance. Further information will be funished, upon request, by the Secretary, J. V. Smythe, 5th Floor, State House Annex.

PENNSYLVANIA

President—ALEXANDER HUTCHINSON

Secretary—THOMAS W. BATTIN

PROFESSIONAL ENGINEERS RECENTLY REGISTERED IN PENNSYLVANIA

Adley, Lloyd C., 2648 North Sixth Street, Harrisburg, Pa. Anthony, Richard L., Bucknell University, Department of Mechanical Engineering, Lewisburg, Pa. Armacost, Wilbur H., c/o Combustion Engineering Co., Inc., 200 Madison Avenue, New York City, N. Y.

Bachman, William P., 831 Park Avenue, Williamsport, Pa. Bareuther, Charles A., 975 City Hall, Civil Service Commission, Philadelphia, Pa. Blake, Charles T., 90 Main Street, Fair Oaks, Pa. Booz, Louis P., 263 Madison Avenue, Perth Amboy, N. J. Brooks, M. E., 3075 Eastmont Avenue, Pittsburgh, Pa.

Caskey, Kenneth H., 3118 North 2nd Street, Harrisburg, Pa. Cooper, Philip, 5140 Locust Street, Philadelphia, Pa. Costello, John L., 975 City Hall, Philadelphia, Pa. Cromer, August B., 3913 Juniper Road, Baltimore, Md. Crossley, John W., 113 Tenth Street, Aspinwall Station, Pittsburgh, Pa.

Daniel, C. E., 101 Park Avenue, New York City, N. Y.

Ennis, Robert William, 111 Maple Avenue, Shillington, Pa.

Faulk, Thomas B., 950 Koppers Building, Pittsburgh, Pa. Fletcher, Boynton J., Wear Ever Building, New Kensington, Pa. Fuehrer, Carl W., Municipal Building, 168 S. Front Street, Milton, Pa.

Geary, Joseph W., Jr., 657 Ferne Avenue, Drexel Hill, Pa. Gibson, Hugh Gordon, 814 Franklin Street, McKeesport, Pa. Graboski, Leo D., 75 Graham Avenue, Lee Park, Wilkes-Barre, Pa. Greul, Armon Rogers,

1834 West Ruscomb Street, Philadelphia, Pa. Growden, James Paul, 251 Orchard Drive, Mt. Lebanon, Pittsburgh, Pa.

Hess, J. Leo, R. D. #2, Montoursville, Pa. Hill, Harry N., Aluminum Research Laboratories, P.O. Box 772, New Kensington, Pa. Humphreys, Clark M., Carnegie Institute of Technology, Pittsburgh, Pa.

Jensen, Frank W., 211 West Street, Wilkinsburg, Pa.

Keller, J. D., Carnegie Institute of Technology, Shenley Park, Pittsburgh, Pa. Kirkhuff, Robert Edmund, 445 Residence Park, Palmerton, Pa. Koelle, William F., Jr., 1633 Race Street, Philadelphia, Pa.

Lamphere, Frank N., 600 North 2nd Street, Harrisburg, Pa. Lubar, Harry C., 29 South 61st Steet, Philadelphia, Pa.

McClain. W. Judson, Wood & Kirkpatrick, Stock Exchange Building, Philadelphia, Pa. McFadden, Benjamin C., 801 Gulf Building, Pittsburgh, Pa. Motter, Harry W., 25 North Duke Street, York, Pa.

Nagy, Frank, 141 North Ninth Street, Allentown, Pa.

Olson, Frank R., 401 Washington Avenue, Manoa, Upper Darby, Pa.

Patterson, John Logan, 1072 Woodberry Road, New Kensington, Pa.

Rosenfeld, Joseph M., 1333 North Hollywood Street, Philadelphia, Pa. Ruger, Raymond P., 6729 North Carlisle Street, Philadelphia, Pa.

Seltzer, Bertram H., R. D. 5, Gettysburg, Pa. Sattenstein, Sidney L., 1509 Linden Street, Reading, Pa. Selig, Ernest T., Jr., Mellon Institute of Industrial Research, 4400 Fifth Avenue, Pittsburgh, Pa. Sheen, Robert T., 235 West Wyoming Avenue, Philadelphia, Pa. *Stoertz, Frank, 6418 Limekiln Pike, Philadelphia, Pa. Strouse, Sidney B., 500-529 Guarantee Trust Building, Atlantic City, N. J.

Willard, John R., Wear-Ever Building, New Kensington, Pa. Woollen, Alexander H., Aluminum Company of America, Wear-Ever Building, New Kensington, Pa.

*Stillwagon, Emerson G., 334 North Pittsburgh Street, Connellsville, Pa.

SURVEYORS

Gibson, J. Scott, 30 Ash Street, Danville, Pa. Hartigan, Philip, 321 Ridge Street, Honesdale, Pa. Larsen, Albert M., East Lincoln Way, P.O. Box #13, McConnellsburgh, Pa. Lesher, Russel M., #16 West Bertsch Street, Lansford, Pa. Rechel, Wm. G., R. D. 3, Mechanicsburg, Pa. Stevenson, A. M., 249 North Second Street, West Newton, Pa., Weaver. Wilbur M., 1620 Main Street, Bethlehem, Pa.

THE PITTSBURGH ENGINEER

Pittsburgh Chapter Pennsylvania Society of Professional Engineers

Earl Dwight Covell, Chairman; Nathan Leebov, Vice Chairman. Address all communications to Engr. Benjamin H. Aires, Secretary, 610 Maloney Bldg., Pittsburgh.

PLANS FOR FUTURE WORK

Fourth Annual Convention of the National Society. The actual dates when the Convention will be held in Pittsburgh will be decided at the meeting of the Board of Directors in March.

CHAPTER MEETING

Regular meeting of this Chapter was held in ASSEMBLY ROOM, FORT PITT HOTEL, 8 P. M. Feb. 17, 1938. Speaker, J. E. Johnson, Director, Education and training, Carnegie Illinois Steel Corporation. Subject: TRAINING ENGINEERS. Dinner: COFFE SHOP, 6:30 P.M.

NEW MEMBERS—MEMBERSHIP STATUS

All members will be interested in the following new members and will want to welcome them into the Society and Chapter meetings: Engineer Newton F. Hopkins, 541 Wood St., Pittsburgh; Engineer John N. Ramsey, Bowman Building, Pittsburgh; Engineer George W. Schusler, Schenley Apts., Pittsburgh; Engineer W. F. Vegeler, Bowman Building, Pittsburgh; Total, Chapter Members—151—Members Transferred—0

LINES AND ANGLES OF CHAPTER ACTIVITIES

The Chapter committees have been organized as follows: (The balance of committee members will be given in a later issue).

Administrative: Canfield, Aires, Finley, Duff, Ducey. Ways and Means: Charles A. Finley, Chairman; Internal Affairs: John Milton Duff, Chairman; Foreign Affairs: Edward J. Ducey, Chairman; Ethics and Practice: E. G. Ross, Chairman, Edward Schmidt, Vice Chairman; Legislative: James S. Devlin, Chairman, David Camilli, Vice Chairman; Public Relations: James Paul Warner, Chairman, E. A. Holbrook, Vice Chairman; Membership: J. D. Stevenson, Chairman; Publications: Earl Dwight Covell, Chairman, Nathan Leebov, Vive Chairman; Meetings: George M. Levinson Chairman; Entertainment: Edward O. Reed, Chairman; Audit: Paul Pudchard, Chairman.

With this issue the new PUBLICATIONS committee continues the issuance of the monthly publication. After much discussion it was decided to adopt a name which would seemingly have a wider appeal to local Engineers. We have THE AMERICAN ENGINEER, THE PENNSYLVANIA ENGINEER, and now THE PITTSBURGH ENGINEER. It is hoped to keep up the good work of the previous committee.

Engineers continue to find cases where men "practice or offer to practice, the profession of Engineering" . . . without having submitted evidence that they are qualified so to practice. Three complaints by members on such alleged practice have been forwarded to the State Registration Board for Professional Engineers with the result that two persons have made application for registration and one has withdrawn certain advertising.

At a previous meeting a petition was signed by fifteen members to change the by-laws to require the printing of at least two candidates of the official ballots. At the last regular meeting this proposal failed to receive the necessary two-thirds majority of votes.

THE MISSOURI SOCIETY OF PROFESSIONAL ENGINEERS AND ITS WORK

(Continued from page 4)

The Missouri Society of Professional Engineers is a needed organization. It has come into existence at a critical time and in response to a definite need. This need was demonstrated when again the attempt to pass a Registration Law for engineers in Missouri failed in our last State Legislature. The only way in which a satisfactory registration law can be obtained in Missouri is through the sponsorship of a state-wide organization devoted to the common interests and aspirations of all engineers; an organization fostering unity, concerted effort, and cooperation; an organization uniting engineers of all sections in the state and one which is truly representative of the profession as a whole.

Our discussion thus far has been general in nature, therefore some specific objectives to which the Missouri Society of Professional Engineers might aspire should be in order. They are as follows:

1. The requirement of adequate education, training and character for admission to our profession.
2. The driving of the unscrupulous and unfit out of the practice of our profession.
3. The protection of the public against the doing of engineering work by unauthorized or untrained persons.
4. The establishment of statewide standards and ethics in engineering practice.
5. The conducting of an active planned campaign of publicity on behalf of the engineering profession.
6. The conducting of a campaign to correct and improve methods of engaging engineering services.
7. The securing of public credit and recognition for engineers in connection with their works.
8. The giving of advice and help to young engineers.
9. Cooperation with the State Technical Schools in regard to the education of our engineers.
10. The restriction of the use of the designation Engineer to members of the engineering profession.

Today, the voice that is heard, the views that carry weight and the opinions that are respected are those of organized groups. Therefore the higher the character of our organizations' personnel, the more vigorous and efficient will be its actions, and the greater will be the importance of the character of its objectives.

In giving a short inventory of our progress to date, it is quite evident that our first aim is to enlist into our ranks the best and most representative of the entire engineering profession in the state. The result in this phase of our progress is shown by a membership of three hundred and fifty professional engineers representing all the major branches of the engineering profession and geographically distributed in 59 cities and towns throughout the state. We have held two regional meetings, one in St. Louis and one in Jefferson City. These meetings were well attended and in every way they were a success. Our Committee on Ethics and Practice has submitted a proposed "Code of Ethics for Professional Engineers" to the Board of Directors and the membership for approval. Our Legislative and Enforcement Committee is being appointed to draft a Registration and Licensing Law to be presented to the next State Legislature for enactment. The Society recently drafted a set of resolutions supporting Federal aid to State highway programs, which was threatened with drastic reductions in the President's recent proposal to Congress to reduce Federal aid in highway building. These resolutions were sent to each Missouri Congressman and the replies were indeed encouraging, which indicated that our interest in this matter had struck a responsive chord with our legislators. This in a general way covers our work this year.

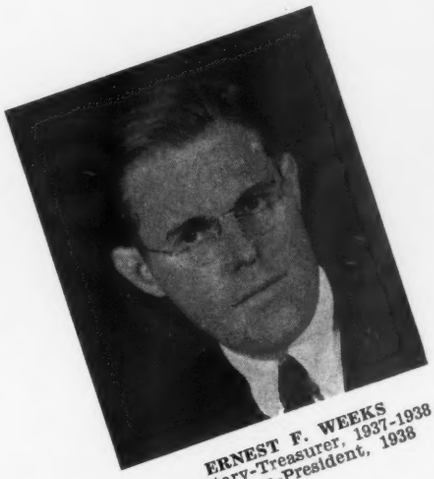
For handling state-wide and local problems of legislation and public relations, the State societies, such as ours, have demonstrated and been universally acknowledged to be the most effective forms of Professional organization.

"The National Society of Professional Engineers, with its State Societies, is consecrated to fostering the ideals and traditions of the Engineering Profession, to stimulating public service within the Profession, to guarding the high standards of professional honor, and to strengthening and conserving public confidence and esteem. Through membership and active participation in this organization, the individual Engineer renders his contribution toward making Engineering a greater and more satisfying Profession than he found it."

OFFICERS ELECTED at ANNUAL CONVENTION January 14-15, 1938

NEW JERSEY ASSOCIATION *of* PROFESSIONAL ENGINEERS *and* LAND SURVEYORS

JAY A. JACOBS
President, 1938



ERNEST F. WEEKS
Secretary-Treasurer, 1937-1938
2nd Vice-President, 1938

SPENCER C. HAMILTON
1st Vice-President, 1938

C. GEORGE KRUEGER
Trustee at Large, 1937-1938

GEORGE RANDOLPH
Trustee at Large, 1937-1938

LEO K. McKEE
Trustee at Large, 1937-1938

MORRIS GOODKIND
Trustee at Large, 1937-1938

1938 CONVENTION COMMITTEE

New Jersey Association of Professional Engineers and Land Surveyors

GENERAL COMMITTEE

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JAY A. JACOBS.....*Vice-Chairman*
HUGH C. CLARKE.....*Secretary*
JOSEPH C. MAULBECK.....*Treasurer*

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Hugh C. Clarke
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Wilbur C. Roberts—Monmouth
William A. Kays—Morris
Frederick W. Loede—Passaic
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A. Walton
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Teofillo Reantillo

Dinner
HAROLD ANDERSON, *Chairman*
Norman Newcombe
Hugh C. Clarke
Cecil Lurie

Ladies Committee
MRS. HERBERT HARTMAN, *Chairlady*
Mrs. Jay A. Jacobs
Mrs. N. P. McGuiness
Mrs. James Collins
Mrs. Joseph O'Leary
Mrs. C. G. Krueger

The Engineer

(Continued from page 7)

grouped these to secure closer interrelation, and economies in publication. No comparable integrating tendency among the Founder Societies has yet appeared. The most important question however, is that of attempts to integrate engineering societies as a whole.

The four Founder Societies are associated, through the United Engineering Trustees, Inc., for the purpose of managing a building used in common, for the maintenance of a library, and to sustain the Engineering Foundation "for the furtherance of research in science and engineering, and for the advancement in any other manner of the profession of engineering and the good of mankind." Excellent as is this joint effort, it is directed in practice primarily toward the attainment of technical objectives, and does not properly touch the relationships of engineers generally to government.

The Founder Societies, together with the American Institute of Chemical Engineers, the Society for the Promotion of Engineering Education, and the National Council of State Boards of Engineering Examiners, joined in 1932 to create the Engineers' Council for Professional Development. This "aims to co-ordinate and promote efforts and aspirations directed toward higher professional standards of education and practice, greater solidarity of the profession, and greater effectiveness in dealing with technical, social, and economic problems." Its activities have been pointed primarily toward young engineers, through the certification of engineering schools in connection with state licensing programs, and the post-academic education of engineers. It is doing excellent work in these fields, but does not aim to ascertain and impress group opinion of engineers on governmental or social problems.

Central Engineering Organizations Already Exist

The nearest approach to a mouthpiece for engineers generally on important matters is the American Engineering Council founded in 1920 "to further the public welfare wherever technical and engineering knowledge and experience are involved, and to consider and act upon matters of common concern to the engineering and allied professions." This is exactly what we have in mind. Yet the engineer, with all his supposed genius for organization, has not rendered this the effective instrument that is sorely needed. Every country doctor knows of the American Medical Association. He may quarrel with its dicta; but he knows that with a host of others he influences its pronouncements, and he is proud that it represents him. I would be willing to wager that a survey would show that a large fraction of engineers in this country do not even know of the existence of the AEC. Certainly the average engineer has no feeling that his influence is brought to bear even indirectly upon their considerations of important public questions. It has not the intense interest and support of the profession generally, and its expressed opinions are to this extent ineffective. A devoted group of engineers deals meticulously with the affairs of AEC, and undoubtedly the situation is not their fault. It is none the less regrettable. There are some evident contributing factors to the situation: The average engineer pays no dues to AEC, sees no direct publication of AEC, and takes no direct part in the selection of this body of men who convene to decide upon the problems of the day. Pronouncements have not been strikingly timely. The engineering profession has held important group opinions, but has not seen them forcibly enumerated and spread on the front pages of the newspapers.

If the engineers of this country do not recognize and support their spokesman in the AEC, still less do they recognize that they have a duality of spokesmen. The American Association of Engineers was founded in 1915 "to accomplish for the unity, welfare, standards, and publice recognition of the engineering profession what such organizations as the American Bar Association and the American Medical Association have accomplished for their respective professions." It has the slogan "proper recognition to the engineer and the engineering profession," awards a medal, provides group insurance for its members, and has been active in vocational guidance.

There are three laudable ideas involved in this matter of a central engineering organization. First is the furtherance of the interests of the profession. Second is the bringing to bear of the influence of the profession upon public matters. There should be no confusion between these. While it is highly fitting and proper that engineers should be active to guard their own interests, such activity is apart from the higher mission of influencing public trends for the benefit of the entire public. These are combined in the same organization only at the risk of weakening the latter. The attention of the AAE is primarily devoted to the former. The third laudable idea is that of direct advice to government departments or agencies on their specific problems.

National Academy of Sciences Was Founded to Advise Government

On this third aspect the engineering societies function primarily only through a more general organization of scientists. The National Academy of Sciences was founded in 1863, by act of Congress, approved by President Lincoln "to advance science and especially to investigate, examine, experiment, and report on any subject of science or art whenever called upon by any department of the Government of the United States." It is a limited-membership self-perpetuating body, similar to the scientific academies of the old world. One of its many sections is composed of engineers. In 1916 its activities were implemented when it formed, at the request of President Wilson, the National Research Council for "the promotion of research in the physical and biological sciences, and the encouragement of the application and dissemination of scientific knowledge for the benefit of the nation." After the war the NRC was perpetuated by an executive order of May 11, 1918. Still later, and again in time of emergency, this organization was extended by the creation, under the Academy, of the Science Advisory Board, which reported on many important matters referred to it by government departments. The term of this board now has expired, and it has been superseded by a committee of the Academy. This whole organization is itself extremely complex.

By the very nature of this organization, it does not function to bring to bear upon great public questions the opinions of scientists, except when called upon and then in connection with definite scientific problems. In such matters it has rendered important aid and advice. One important aspect of its affairs has been to set up advisory committees for scientific bureaus of the government. Its active arm in research, the NRC, administers research funds for government and large groups, and correlates and promotes scientific research generally.

This is the official established mechanism by which government may call for the opinion of scientists generally, and engineers in particular, upon technical problems, for it was created by government for this specific purpose. Government does so call, and does thus receive advice and counsel. Questions involving important en-

gineering matters, such as recently the problems of ship stabilization, and of lighter-than-air craft, thus are given the benefit of review by distinguished men. Sush a controversial matter as the economic and engineering justification of building a tide-power plant on the coast of Maine, however, does not travel by this route. If government asked the question, it would obtain an answer; but it does not ask the question. The mechanism is available, but the pressure necessary to ensure that it will be used is absent. True, engineers are here joined with all types of scientists, but nevertheless the query would result in the gathering of a distinguished group of engineers and economists to deliver the answer. Later, I will discuss the function of the independent consulting engineer in this connection, but at this point I merely note that his services, under proper fee, are not at all inconsistent with the presence of distinguished voluntary committees of review.

One more organization remains to be mentioned. The American Association for the Advancement of Science, founded in 1848, is the great democracy of science in this country. This loosely knit organization comprises about 150 member societies, with half a million members. One section with many member societies, is devoted to engineering, but engineers generally take no part in its activities. It serves the very useful purpose of bringing together diverse scientific groups for great annual meetings at a common point. Its council occasionally adopts resolutions on public questions, but legislators do not hang on its words. Its membership is too casually affiliated to render it a powerful voice in national affairs.

The engineer, who applies science in an economic manner for the benefit of mankind, certainly has as close common interests with the social scientist as with the physical scientist. Yet the organizations of the social scientists are not greatly participated in by engineers.

Since the beginning the engineer has co-operated closely with the physical scientist; and in fact many engineers are themselves physical scientists of no mean accomplishment. We have reached the point where engineers are learning to work in similar cooperation with social scientists, but the relationship must proceed much further than this. It is necessary, in connection with many of the problems that come to him, that the engineer be himself a social scientist —not a dilettante but a deep student and scholar in his own right in various branches of the social sciences. Only thus may he be properly cognizant of the source from which his activity derives, and also properly cognizant of the social conditions under which it becomes applied. Long familiar with applied economics, he now finds pressing upon him other branches of the broad science of human relationships. The colleges have a duty to perform here, and so have the professional engineering societies. Certainly their meetings and publications should generously reflect this growing need and interest.

Integration, Not Another Society, Needed

To summarize this matter of organization: Real attention is being given to the professional advancement and the technical interests of the profession. We have an enormously complex system of organization of scientists and engineers in this country, and yet no effective single central organization representing *all* engineers and expressing their viewpoint on public questions. We have an elaborate mechanism for bringing advice to bear on scientific and engineering problems as they arise in government, and this mechanism is not utilized to the full.

What is to be done about it? Certainly no solution lies in forming one more society to join the throng. Integration is indicated; and since societies now exist for all the express purposes we have considered, a duplication of effort by a newcomer would simply complicate matters. Rather, the existing mechanism should be simplified and strengthened.

Would it be of aid if the great national organizations, such as the AIEE, were to take official and definite positions on public questions involving engineering? I do not think this is their proper function, for reasons I will discuss. This is being done in some such organizations, and the effect so far has not been especially helpful. It is another thing entirely for the AIEE to provide a forum for the frank discussion of important questions by men of all shades of opinion. In this I believe it has a duty to perform. So far it has not been done, and the reason seems to be that those in control have not had the courage to take a step which they fear would split the society. Perhaps a frank and fearless discussion on the floor of an AIEE convention of such a problem as that of the proper sphere of activity of government in the generation and distribution of electric power would split the society. I do not think it would. This is certainly a matter of present interest to electrical engineers. If those who are best able to approach it dispassionately and intelligently fear to open the question at all, how is public opinion to be influenced? In the membership of the Institute are men who hold all sorts of opinions on this subject, many of them violently. Many will not express their honest opinions because of their affiliations with government or with public utilities. But there are many more who can and will bring light upon the subject, and, like all subjects of great controversy, it has at least 2 sides. When I speak of a free forum in this connection I do not mean one where the floor is open to the public: I have in mind one where the participants are carefully chosen for their ability to present their views clearly and calmly, and carefully chosen to bring out all shades of opinion. Such an airing of views on this and many other matters would do a great deal of good. A similar benefit will result when professional publications carry powerful expositions and arguments on the live issues of the day, again with an opportunity for accomplished representatives of all sides to be heard. But the Institute itself should express no opinion on this or any other controversial question where its membership holds diverse views. It cannot at once be the guardian of a free forum and an advocate. Still it should certainly not be an ostrich.

This taking of stands should be left to a body having that as its primary function. That body should be made up of men of great distinction in the profession, chosen for the purpose by the membership of the profession directly. It should use every legitimate means to be well known to the membership, by questionnaires, publications, and by reasonable publicity in regard to its deliberations and findings. It should be absolutely without fear and without prejudice. Its pronouncements should be front-page news in every corner of the land. It should enter into any public question involving engineering as a right and without invitation. It should not hesitate to swing public opinion by rousing the profession when such action is indicated. In order that it may speak with a single voice it should represent engineers only, with deference, of course, to the opinions of other professional groups. We do not have this situation today. The metamorphosis of existing organizations, under the guidance of public-spirited engineers, may bring it to pass. As it proceeds it should have the aggressive support of every engineer who has the good of his country at heart, whether or not he agrees with its findings in every respect.

Give the Engineer Credit!

The Engineering Profession being the oldest profession in the World can rightly claim to have done more for the advancement of civilization, for the ease and comfort of the human race than all the other so-called professions combined. This being the case they are entitled to their share of the benefits which they have bestowed upon mankind.

That the engineer has not received proper consideration of his work is shown by the naming of large engineering projects for their political sponsors rather than for the Engineer who was responsible for their design and construction. Two rather glaring examples are the McAdoo Tubes in New York and the "Hooey" Long bridge at New Orleans.

From articles, editorials and letters published in the different technical journals is evidence that the engineer is becoming aroused to the situation. Some try to trace the cause while others suggest remedies for the condition that exists among the ranks of the engineers today.

The cause of all the ills rests squarely with the engineers themselves, due to some kind of modesty they have not informed the general public regarding their work, even today the majority of laymen cannot tell the difference between an engineer and an engine operator. The other so-called professions are not so modest and retiring.

For over fifty years, in the public press, reference has been made to "The Three Learned Professions," namely Medical, Legal and Theological, but at no time has Engineering been classed as a learned profession. The engineers have gone quietly about their business and let these so-called professions get away with it.

Taking the definition of the word "Profession" as a start what do we find? A profession is defined as "An occupation requiring a high degree of intelligence and education." Keeping this in mind, of the three so-called "Learned Professions" only the Medical, being a branch of Science, can rightly be classed as a profession. The Legal has for its foundation rules of conduct formed in the remote past and at the present time is based on precedence and the decision of some Judge on the question involved, or as one of our leading Judges says "The law is what the Judges say it is." Theology is based on the myths and legends of antiquity, it is unknowable and must be taken on faith. In this connection, several years ago a book was published bearing the title "The Oldest Professions in the World," namely Priestcraft and Prostitution, a reading of this work of art which covered the period before the time of Christ shows that neither can be classed as a profession, the first being a "Racket" and the second a "Pleasure."

About 90 per cent of the engineers are employed by others on a salary basis and their employment follows the well known law of supply and demand. An attempt to better their condition is being made by some in the lower salary brackets by forming a Union of Technical Employees and affiliating with one of the national labor organizations, of this only time will tell.

In the past anyone who so desired could call himself an engineer, we have plumbers adopting the title of Sanitary Engineers. A salesman of office safes is a Safety Engineer, and the writer met a Revivalist Preacher who styled himself as a Soul Saving Engineer, whatever that means. This condition is being corrected to a great extent by the Registration Acts adopted by the various State legislatures, however there still remains much room for improvement.

To start discussion on the subject the writer submits the following for consideration of his brother engineers.

The members of the State Engineer Boards to be appointed from a list of names submitted by the State Society of Professional Engineers and not for political reasons.

That all applications for registration be submitted to the local Chapter having jurisdiction for investigation and that the State Board abide by the recommendations made.

To call attention to all Civil Service Boards to the Registration Act and require all engineers in the Public Service be registered, and also request that registered engineers be permitted the privilege of appointment to positions without examination, this privilege is now accorded the Doctors and Lawyers. Why not the engineers?

BREADTH IN ENGINEERING CURRICULA

(Continued from page 10)

ates with even less than two-thirds of their time spent in engineering who can easily catch up with their more technical brethren and I find little objective evidence to support the theory that a competent engineer cannot build up his theoretical and technical knowledge, after he leaves college. Of course, he can build up his economic and cultural knowledge also, but he can do it much better perhaps if he has had some real foundation for such work during his college course. So it seems to me that our own investigation, the plea of President Roosevelt, the speeches of our leading engineering educators all point to a little more liberal engineering curriculum. Are we going to do anything more than talk about it?

Of course there is one easy solution that may be directly before us now that engineering schools can be accredited and engineers licensed. That is to follow the lead of the law profession and demand two years of liberal arts work before undertaking the study of engineering at all. If such a program were adopted the two years of preliminary work might be divided into approximately five courses each year, and out of the ten we could ask the liberal arts college to include two courses in mathematics, including calculus, one course in chemistry, one in physics, one in mechanical drawing. Then in each of the four years spent thereafter in the engineering school we could include one course outside the engineering field. Such subjects as economics, sociology, political science, esthetics, psychology, and philosophy could find places in our programs and we might really carry out our mandate from the profession, "the inclusion at all stages of subjects of purely cultural value." Certain universities such as Columbia, Cornell, and Harvard are already tending in this direction; perhaps we may all soon follow.

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